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V.

THE RELATIONSHIP OF THE BACTERIUM TUBERCULOSIS TO THE TUBERCLES OF THE HUMAN LUNGS AND OTHER ORGANS.

The bacterium tuberculosis does not present itself in the same form, or in the same stage of development, in all portions of tuberculous lung, or even in all forms of tubercle. On the contrary, its development depends to a certain extent on the particular development, degeneration, and death of the tubercular growth. Greatest in number and highest in form of development, the organism is generally met with in tubercles which have very slowly and completely undergone the coagulation necrosis, and in which the outlines of the tubercle cells, as well as those of their nuclei, have disappeared. Such tubercles are generally met with in the lungs of cases of chronic tuberculosis. In some of these tubercles the bacteria tuberculosis are met with, embedded in the degenerated tissue, in very large numbers, whilst in others

they are not so numerous. They are always found to lie in groups of four or five, or even more individuals, in the same way as they are frequently met with in the tuberculous expectorations. The morphological characters of the bacteria contained in these tubercles are the same exhibited by those already described and met with in tuberculous sputum. In examining microscopically thin sections of tuberculous tissue, containing very numerous bacteria tuberculosis, only a certain number of them can be at one and the same time brought into focus and distinctly seen in their proper outlines; the rest, being embedded more deeply in the tissue, and out of focus, will cause the tissue itself to appear as if stained by the same color, which in reality is not the case. Although the peculiar grouping of the bacteria tuberculosis has also been observed and mentioned by other authors, I have not, as yet, met with a satisfactory explanation for this phenomenon. It appears, therefore, that it is generally regarded as a matter of fact which needs no special explanation, if we simply regard the individuals, forming one group, as the descendants of that particular bacterium which, coming from the surrounding atmosphere, first entered the lungs during the act of respiration, to settle on the very spot in one or the other alveolus, where the group is found. And I must confess that in the beginning of these investigations, I entertained to a certain extent a similar view, until I made a certain observation, which explained to me the phenomenon of the bacteria tuberculosis appearing almost always in the form of groups, when met with in the tissues of the human organism. This observation I shall now describe.

In the latter part of the spring of 1883, after I had suc-

cessfully stained the bacterium tuberculosis in tuberculous expectorations, and in numerous thin sections made from different tuberculous lungs, and, while still testing different methods of staining, I observed in sections, stained with methyl violet, and decolored by alcohol, that, though no stained bacteria could be discovered in the section, a number of nuclei had retained some of the blue color, while the rest of these bodies had given it up. At the same time, I noticed in the interior of these nuclei several granular bodies of a slightly deeper stain. Regarding these stained nuclei as having been formed more recently than those unstained, and the bodies which they contained as their ordinary, legitimate granules, I attached no particular importance to this observation. Some time afterward, however, when again examining sections, made from the lungs of a case of typical miliary tuberculosis, and stained by Gibbes' method, first with magenta and then with chrysoidine, I observed the same phenomenon, though more distinctly than before. In these sections, in which the tubercles were comparatively small, and in which no bacteria tuberculosis whatever could be discovered in their cheesy degenerated centres, I observed a number of deeply stained granules, as well as granular filaments, in the interior of the nuclei of the tubercle-cells occupying the periphery of the tubercle. Whilst these bodies, which in every respect resembled bacteria, were deeply stained by the purplish blue of the magenta, the protoplasm of the nucleus itself was stained yellow by the chrysoidine. This observation explained to me at once not only the cause of the peculiar grouping of the bacteria tuberculosis, as observed in the cheesy parts of the tubercles, but,

moreover, their true origin in the nuclei of the tubercle-cells, and also showed me the direction in which my investigations had to be further pursued. In examining other sections of the same lung, stained in the same manner, I then observed the same purplish blue bodies not only in the interior of the nuclei of the tubercle-cells, but also in the nuclei of all the cells contained in the different tissues of the bronchioles adjacent to tubercles; that is, in the nuclei of the connective tissue-cells of the mucous and fibrous coats (fig. 6 *a*) in those of the muscular fibre-cells (fig. 6 *b*) and even in those of the cartilage-cells contained in the minute cartilaginous plates of the bronchioles. I furthermore observed these bodies in the nuclei of the cells of the adventitia of some of the smaller arteries. By repeatedly observing this same phenomenon afterward in sections made from the tuberculous lungs of other cases, especially of miliary tuberculosis, I was, at last, convinced of the bacterial nature of these stained bodies within the nuclei of the bronchial walls; the more so as they were not observed in the nuclei of the walls of bronchioles not adjacent to tubercles, nor in those of the healthy parenchyma of the lungs. While these bodies were stained of a deep purple by the magenta, the protoplasm of the nuclei appeared stained more feebly by the same color, indicating that the latter were affected by some irritation, probably derived from the neighboring tubercle. In staining these sections with a second color, such as chrysoidine or Bismarck brown, it was absorbed by the protoplasm of the nuclei, while the bacteria within the latter kept their purple tint; only when exposed a comparatively long time to these second colors, the bacteria assumed a brownish tint, though much darker than that of the nuclear protoplasm.

The correctness of the observations just described, I found corroborated by the examination and study of a very considerable number of stained sections, taken not only from the lungs of cases of miliary, but also of chronic tuberculosis, and of tuberculous livers, spleens and lymphatic glands, in which the same well-stained granular bodies were always observed in the interior of the nuclei of those tubercle cells occupying the periphery of the tubercle. All that now remained to prove the bacterial nature of these bodies was to meet with such sections of tuberculous tissue in which not only the origin and development of the bacteria tuberculosis in or from the protoplasm of the nuclei, but also their liberation from the latter could be clearly demonstrated. By the close examination of numerous well stained sections of large miliary tubercles of the lungs, liver and spleen, or of such tubercles situated near the borders of the tuberculous portions of the lungs of cases of chronic tuberculosis, I succeeded, at last, in tracing in one and the same section the bacterium tuberculosis from its first appearance in the nuclei of the tubercle cells to its full development and its liberation from the degenerated nuclei in the cheesy centers of the tubercles. Specimens of tubercles in which the bacterium tuberculosis can be traced from its origin to its liberation are, for certain reasons, to be stated directly, not found in every tuberculous portion of lung, liver, etc., though they are often enough met with, especially if properly looked for, to furnish to every investigator ample opportunity to corroborate the correctness of my statements.

As far as I know from the current medical literature it has now been asserted by a number of investigators on the subject under discussion, that free bacteria tuberculosis *cannot be discovered in all tubercles*, and, moreover, that whenever

they are met with in tuberculous tissues, it is principally in that portion of tubercle, or tuberculous mass, in which the process of coagulation-necrosis is going on. My own observations not only corroborate the truth of the statements of these authors, but also enable me to furnish in the following pages the explanation for this phenomenon.

From my observations it appears that the development of the bacteria tuberculosis in the nuclei of the tubercle cells stands in a certain relationship with the degree or rapidity of the degenerative process taking place in the nuclei; in other words, the more rapid the course of the degenerative process,—not only of the nuclei but also of the protoplasm of the cells,—the smaller is the chance for the bacteria to reach their full development or maturity; whilst on the other hand, the more slowly this process proceeds, the more time will be afforded to these organisms for reaching their full development and their final liberation from the degenerated protoplasm of the nuclei.

The appearance of the bacteria in the nuclei is always preceded by a shriveling of the nuclear protoplasm, indicating that the degenerative process has commenced. The normally round outlines of the nucleus, then, become irregular, whilst its double contour appears darker and more prominent. With the advancing degeneration the irregularity of the outlines of the nucleus increases, whilst its margin, represented by the double contour, is breaking up, first into a few and then into more fragments, which are finally converted into a number of minute filaments of a granular or bead-like composition. In the course of the degenerative process the power of retaining aniline colors against decolorizing agents, such as nitric or formic acid, etc., increases in the margin of the nucleus, and in the fractions into

which it has broken up, in proportion to the degree of degeneration. It is thus that in thin sections of tuberculous tissue, stained with magenta, the irregular shriveled margins appear of a dark red, which ultimately, in the filamentous fragments changes into purple.

Whilst the above described changes are observed to take place in the protoplasm of the nuclei, that of the cells, of course, undergoes the same degeneration. Accordingly the bodies of the cells appear paler and paler, until finally their outlines can be no longer distinguished, their protoplasm having lost all power of absorbing coloring materials, and undergone the coagulation-necrosis. As far as I am able to judge, the degenerative process not only commences in the protoplasm of the cells, but runs there a more rapid course than in that of the nuclei. This is seen in examining the cheesy centres of miliary tubercles, in which no trace of the outlines of the cells can be discovered, while a number of shriveled nuclei, containing forms of more or less perfectly developed bacteria, or minute fragments of nuclei, are still met with. Judging, however, from the fact observed in these cases, that the remains of the protoplasm of these nuclei still present the yellow color of the chrysoidine, or Bismarck brown with which the section was lastly stained, whilst the bacteria show the purple of the magenta, it appears to me that the protoplasm of the nuclei never undergoes a perfect degeneration, as, otherwise, it would not have retained its capacity of absorbing coloring matters. It seems, therefore, more probable that the shriveling of the nucleus stands in some relation to the development of the bacteria, for the more fully the latter are developed, the more the nucleus shrivels; in other words, the protoplasm of the nucleus ap-

pears to be necessary and appropriated for the development and growth of the bacteria.

In referring to some of the illustrative figures, accompanying this treatise, the reader will be enabled to understand more fully my statements regarding the development of the bacteria tuberculosis in the nuclei of the tubercle cells. Let us begin with fig. 3, which represents a small part of the periphery of a miliary tubercle with several of the neighboring non-tuberculous alveoli magnified about 625 diameters. In this figure we recognize at *a* the shriveled nuclei containing more or less developed bacteria tuberculosis, at *b* the epithelial cells of the non-tuberculous alveoli, and at *c* the interalveolar septa with the nuclei of their multiplied connective tissue-cells derived from the adventitia of their vessels, etc.; *d* represents a small portion of the periphery of the tubercle, while *e* represents a young tubercle which has arisen from a part of the wall of a large alveolus, or perhaps infundibular cavity, and which, contrary to the rule generally observed, has undergone the coagulation-necrosis at the periphery of the tubercle. The cheesy centre of the tubercle is situated toward the left and outside of the drawing. In proceeding with the examination of the anatomical elements represented in this figure from the right to the left side, we observe in the non-tuberculous alveoli, on the right side, already a number of nuclei which present the degenerative changes, above described, in their different degrees. Some of these nuclei are contained in the epithelial cells, while others appear to be located in the open spaces between these cells, occupied by the capillaries. From this it appears that the development of the bacteria tuberculosis not only takes place in the nuclei of the true tubercle cells, derived from the cells of connective tissue, but

also in those belonging to the cells, lining the alveolar walls, and which descend from the cells of the entoderma. The same phenomenon is observed in the liver as we shall see hereafter. Although no trace of tubercular growth is found in these alveoli bordering the tubercle, quite a number of nuclei containing developing bacteria are nevertheless already observed in the inter-alveolar septa. The changes observed in these nuclei are most probably caused by a morbid irritation, derived and radiating from the neighboring tubercle. In passing to the left of the figure we observe at *d* the periphery of the tubercle. Here, most of the nuclei of the tubercle cells contain bacteria tuberculosis in different stages of development; the shades between these nuclei represent others out of focus. Finally at *e* we observe in the young tubercle, having already undergone the coagulation-necrosis, still a number of nuclei containing bacteria, together with others already disintegrated, the remains of which are observed throughout the cheesy mass in the form of fragmentary granular bodies. Although in this minute cheesy tubercle bacteria tuberculosis are distinctly seen in the remaining nuclei of tubercle cells, none of these organisms are met with entirely liberated from the nuclear protoplasm, either single, or forming larger groups, or aggregated in masses. On the contrary, after having reached a certain degree of development, they degenerate, die and disintegrate with the anatomical elements of the tubercle. As this condition of things is mostly found to exist in the smallest tubercles of typical cases of miliary tuberculosis, it explains the fact, observed and stated by some authors, that *not all tubercles contain bacteria tuberculosis*, and that, whenever they are met with, it is generally in the cheesy matter of old tubercles. I have microscopically examined the

lungs of a fair number of cases of miliary tuberculosis, without even being able to discover free and fully developed bacteria tuberculosis in the smaller or younger tubercles of these organs; whenever they were met with, it was always in the older and larger tubercles. In the miliary tubercles of the liver and spleen, on the contrary, I have not unfrequently encountered them liberated from the nuclei, and fully developed; in these cases, however, the lungs always contained small cavities, showing that the course of the disease was rather protracted.

In directing now our attention to figure 4 which represents a portion of a small miliary tubercle near its cheesy centre, magnified about 1,090 diameters, we observe the same condition as in fig. 3, with the exception that the anatomical elements, being more highly magnified, are more distinctly recognized. As in the preceding figure, we observe at *a* the bacteria tuberculosis developing in the nuclei of the tubercle cells; the outlines of these cells are not seen, on account of the object being mounted in Canada balsam and illuminated very highly with Abbé's illuminating apparatus. At *b* the same nuclei are seen, but out of focus, while *c* represents the inter-alveolar septa. Finally at *d*, a portion of the cheesy centre of the tubercle is represented, in which the disintegration of the nuclei and bacteria tuberculosis is distinctly seen.

The degeneration of the nuclei and imperfect development of bacteria tuberculosis is equally well exhibited in figure 10, representing some of the anatomical elements of a miliary tubercle of the liver, magnified 1,090 diameters. In this figure, we observe at *a* a group of normal hepatic cells from near the border of the tubercle; *b* represents a pair of hepatic cells from the periphery of the tubercle, the nuclei of which have

commenced to shrivel, while at *c* a number of nuclei from the cheesy centre of the tubercle are exhibited, the margins of which are shriveled in a higher degree and broken up into fragments. Some of these nuclei are still surrounded by the degenerating protoplasm of their cells. At *d*, finally, the ultimate minute fragments of the nuclei are represented, some of which have assumed the form of granular filaments.

In the cheesy centres of the older and larger tubercles, or tuberculous masses, met with in the lungs of cases of chronic tuberculosis, as well as in those of the larger tubercles found in the organs of protracted cases of miliary tuberculosis—especially when accompanied by the formation of small cavities in the lungs—the bacteria tuberculosis become fully developed and are liberated from the remaining protoplasm of the nuclei by its final complete degeneration. Although the gradual development of these bacteria, from their first appearance in the nuclei of the tubercle cells to their final liberation, and to their aggregation in larger groups, or masses, is not seen in the sections of every one of these tubercles, there are, nevertheless, many specimens met with—especially when looked for in the examination of very numerous sections—in which the whole process may be observed in one and the same section. It is from such a specimen that figure 5 was copied. This figure, also magnified 1,090 diameters, represents a small portion of a large tubercle from the lungs of a boy, sixteen years old, and affected with miliary tuberculosis of the lungs, liver, spleen, kidneys, and lymphatic glands; the lungs, from which the section was taken, contained several small cavities. The tubercle, though it had undergone the coagulation-necrosis, showed no cavity in the centre. In this figure, as in the preceding, *a* represents the bacteria tubercu-

losis developing in the nuclei of the tubercle cells, and *b* the same out of focus. At the upper portion of the figure, the borders of two neighboring alveoli are recognized, while *c* very likely represents some degenerated interstitial connective tissue, leading to the central part of the tubercle. In the latter we observe at *d* the bacterial groups commencing to enlarge in their dimensions, while at *e* we find them aggregated into small masses. In the sections, the latter present a purplish blue appearance, caused by those bacteria being buried deeper in the tissue, and in consequence out of focus.

Though I am as yet unable to assert anything positive as to the exact manner in which these aggregations of bacteria tuberculosis are formed, I think that it may take place as follows: When the bacteria contained in one nucleus have reached their full development, they may be liberated by the complete degeneration and disintegration of whatever has remained of the protoplasm of this nucleus, and then multiply in the protoplasm of the body of the cell, provided it has as yet not completely undergone the necrotic process. I doubt not but that in this manner the groups of bacteria, originally contained in the nuclei, frequently grow in dimension, and that this mode of growth has given rise to the idea, generally entertained, of these organisms being contained in the protoplasm of the tubercle cells. The groups, represented at *d* of figure 5, may have grown in this way. The larger aggregations of bacteria, represented at *e*, may have been formed in the same manner, that is, by a complete necrosis and fusion of the protoplasm of a number of neighboring cells, together with a numerical increase of the bacteria contained in these cells or their nuclei. The formation of these aggregations or masses of bacteria tuberculosis in the manner just indicated is very probable, for

the reason that by a close microscopical examination the original groups, forming these masses, may in many instances be still recognized.

In some of the miliary tubercles of the liver the development of the bacteria tuberculosis in the nuclei of the cells as well as their liberation from the latter and their aggregation into small masses is frequently well exhibited in one and the same section. In the preceding division of this treatise I have already mentioned that the secreting elements of the liver, the hepatic cells, appear to take a part in the formation of the tubercle; at any rate, bacteria tuberculosis are observed to develop in the nuclei of these cells. To illustrate this fact let us examine figure 8, which has been copied from a section of the liver of the boy of sixteen years, above mentioned, and represents a small portion of the parenchyma of this organ, bordering directly the periphery of the miliary tubercle, magnified about 625 diameters. In this figure we observe a number of hepatic cells (*a*) the nuclei of which still present a normal appearance, whilst in others the degenerative changes of these bodies, with the gradual development of the bacteria tuberculosis (*b*), are distinctly seen. In passing over the figure 9, representing a portion of the centre of the tubercle which has undergone the coagulation-necrosis—also magnified 625 diameters,—we observe a number of fissures (*a*) in the section which, very likely, represent the contracted lumen of the capillaries. At (*b*) the individual groups of bacteria tuberculosis, with the remains of the protoplasm of the nuclei in which they have been developed are distinctly seen. In passing from the upper to the lower part of the figure the bacteria of these groups are observed to increase in number until at (*c*) they appear as smaller or larger aggregations.

During the course of the development of the bacteria tuberculosis in the nuclei of the tubercle cells they appear both in the form of cocci or diplococci and of filaments composed of three, or even four cocci. The latter appear generally curved, and frequently lie parallel with the periphery of the nucleus, so that in the beginning of their formation they might be mistaken for the double contour of this body. That this is not the case, however, is easily discovered by observing the granular fragments into which the contour is broken up. The single granules, or cocci, do not represent the normal granules contained in the nuclei, as might be thought; this is proved by their retaining the purple color of the magenta when subjected to the action of decolorizing agents, a property which the latter do not possess. Besides the normal granules of the nuclei occupy the interior and not the periphery of these bodies. But, as not all the nuclei of the tubercle cells contain bacteria, the difference between these organisms and the normal organic granules is easily recognized by the latter being stained, like their nuclei, with the second color of the section.

In sections made of tuberculous lung tissue bordering a smaller or larger cavity, the gradual development of the bacteria tuberculosis may also be frequently observed. In the tuberculous tissue, forming the walls of the cavities, which is generally more or less indurated, the bacteria may still be contained in the remains of the protoplasm of the nuclei, whilst at the very borders of the cavity, as well as in the layer of inspissated purulent matter, by which the latter is generally lined, groups of free bacteria may be met with. By the breaking down of the tuberculous tissue the bacteria get into the purulent matter contained in the cavity, and with this into the expectorations of the patient. Not in every instance, however,

are bacteria tuberculosis met with in the sections taken from the borders of pulmonary cavities, a circumstance which explains the fact of the occasional absence of these organisms from the expectorations of tuberculous patients.

The development of bacteria in the protoplasm of the nuclei of irritated and degenerating cells, however, is not only observed in tissues affected by tuberculosis, but also, as I shall show directly, in the neoplastic degenerating cells of organs affected by other diseases, such as leprosy, carcinoma, etc.

In the same manner as tuberculosis is characterized by the presence of the bacterium tuberculosis in the tubercles of the organs affected by this disease, leprosy is characterized by the so-called *Bacillus leprae*. This organism, though called a bacillus, presents itself still more distinctly in the form of very minute cocci than the bacterium tuberculosis. The chief difference found between the two organisms consists in the cocci of the bacterium of leprosy being smaller than those of the bacterium tuberculosis, as well as in the filaments formed by these cocci being almost always straight. With the view of closely investigating the morphological characters of the bacillus leprae, I amputated in the summer of 1883 the lobuli of the ears of two living leprosy patients. The examinations made on the material thus obtained were not only confined to thin sections, but extended to the fresh blood oozing from the cut vessels, and to the matter scraped with a sharp knife from the freshly cut surface of the lobules. All the preparations were carefully stained by Gibbes' method with magenta and chrysoidine. In the matter scraped from the cut surface of the lobuli I met, as I had expected, with single leprosy cells, detached from the connective tissue of the skin by the scraping process, which contained single cocci, diplococci, and filaments

composed of three or four cocci, representing the bacillus leprae.

In the stained preparations which I had carefully made of the blood oozing from the cut vessels of these lobuli, I discovered the same organisms, showing the morphological characters, above mentioned, still more distinctly than in the leprous cells. They were here observed attached in the form of groups to the colorless blood corpuscles, the number of which appeared to be abnormally increased. The protoplasm of most of these corpuscles had undergone degeneration and disintegration, the bacteria appearing liberated, or adhering to the remains of the likewise degenerated nuclei (fig. 12, magnified about 1090 diameters). Subsequently to this observation a number of other preparations were made of leprous blood, taken from different parts of the skin of three leprous patients by my young friend Dr. E. Laplace, at present sojourning in Paris, who was, at that time, the student assistant of the Pathological Department of the Charity Hospital. In all these preparations the same organisms were found, exhibiting the characters above described. Although a number of opportunities were offered to me, since that time, to examine the blood of other lepers, I neglected to do so for the want of time; until during the summer of 1885, when I again examined the blood taken from the arms of two other leprous patients, without meeting, however, with any bacteria contained in this fluid.

The same form of bacteria as those met with in the blood were observed in the protoplasm of the cells and their nuclei in the pus covering the healing surface of the ears, from which the lobuli had been cut. In the matter taken from a pustule of the skin of another leprous patient, a woman, the bacteria

were met with mostly in the form of granular filaments in the nuclei of the leucocytes.

In the sections, made from the amputated lobules of the ears, I found, likewise, the bacteria developing in the nuclei of the neoplastic cells. But, as many of the cells contained in such a section had undergone fatty degeneration, and, in consequence, were filled with a number of smaller or larger fat globules, whilst at the same time they contained quite a number of nuclei, formed from the original nucleus by the process of division—and which eventually undergo degeneration—a careful examination is required to clearly understand the exact location of the bacteria in the larger kind of these neoplastic cells. For this reason our attention should be directed to those cells, of which the protoplasm has as yet not undergone fatty degeneration, and in which the multiplication of the nuclei has not advanced too far. In these cells the bacteria will be seen developing in the nuclei (fig. 14, *a*, *b*, and *c*); and, when closely examined with a good homogeneous immersion objective of a sufficient magnifying power, and illuminated with very oblique light, they will show that they are composed of minute cocci, appearing in bas-relief-like minute beads, and exhibiting the character of a true *sphero*-bacterium. In consideration of this fact I do not hesitate to call hereafter the so-called *Bacillus leprae* by its proper name, the *bacterium leprae*.

In the latter part of the spring of 1884, another fair opportunity of investigating the morphological characters of the *bacterium leprae* was offered to me by the death of a severe case of leprosy at the Charity Hospital. The microscopical examination of the tissues of the lungs, liver, spleen, kidneys, epiglottis, etc., fully corroborated the correctness of my pre-

vious observations concerning the bacterium leprae. In the liver and spleen the development of these bacteria in the nuclei of the cells was particularly well exhibited, as will be seen by referring to figure 11. In this figure, which represents a small part of a thin section of the liver, stained by Gibbes' method, and magnified about 625 diameters, we observe at *a* the normal nucleus of a hepatic cell, while that of a neighboring cell, at *b*, shows the beginning of the degenerative process by the shriveling of its margins. In proceeding to *c*, we find the outlines of the nucleus obliterated and the bacteria leprae nearly developed; while finally at *d* they are seen completely liberated from the degenerated protoplasm of the nucleus and disseminated through the likewise degenerating protoplasm of the body of the cell.

Finally in the summer of 1885 I took occasion to convince myself once more of the correctness of my previous observations, by examining very thin sections made of a leprous tubercle cut from the arm of a living patient, and also stained by Gibbes' method. Small portions of one of these sections I have represented in figures 13, 14 and 15. The first of these (fig. 13) represents a minute portion of the pars reticularis of the corium of the skin from the very margin of the tubercle, where the pathological changes of the connective tissue cells are still in the incipient stage of the disease; it is magnified 625 diameters. In it, we observe a considerable number of the nuclei of these cells (*a*) distributed throughout the fragments of tissue containing bacteria leprae in their early stage of development. Of these cells, only a small number (*b*) are seen in an advanced stage of fatty degeneration with the fully developed bacteria leprae between the fat globules. In figure 14, which represents a minute part from the middle of the tubercle, and also

magnified about 625 diameters, the bacteria are seen in the different stages of their development. Thus at *a* their first appearance is noticed in the nuclei of the unchanged connective tissue cells, whilst at *b* they are slightly more developed. At *c* the nucleus has disappeared by degeneration, and the bacteria are seen fully developed in the protoplasm of the cell, exhibiting very distinctly their grander character. Finally at *d* they are, as before, met with fully developed between the flat globules of the degenerated cells. In figure 15, which represents a number of degenerated leprous cells, magnified about 1090 diameters, the morphological character of the bacteria leprae is still better recognized than in the preceding figures.

In order to ascertain whether, like in the nuclei of the cells of tuberculous and leprous tissues, bacteria would also develop in those of other morbid growths, I examined during the course of the above described investigation, the sections of quite a number of fresh tumors, or other neoplasms, stained by Gibbes' method. Although in the greater number of these specimens bacteria were not met with, I nevertheless found my suspicions verified in distinctly observing in four instances the development of these organisms in the nuclei of the neoplastic cells in the same manner as I have described it above. The first of these instances relates to a small lobulated tumor, about $\frac{5}{8}$ inch in diameter, a so-called polypus of the mucous membrane of the rectum, removed from very near the verge of the anus. In examining the sections of this tumor, I met in some places of the hyperplastic connective tissue a large number of cells the nuclei of which contained granular bodies resembling bacteria. That these bodies in reality represented bacteria, was proved

by their being intensely stained purple, or purplish blue, by the magenta, while the protoplasm of the nuclei was stained yellow by the Bismarck brown. They presented themselves mostly in the form of cocci, or diplococci, but there were also some filaments observed, composed of three cocci. The diameter of these organisms was about the same as that of the bacteria tuberculosis, though among them a number of single cocci of a still larger diameter were noticed. In the nuclei of a small number of the deeper cells of the epithelium covering this tumor, as well in some of the Lieberkuehn's glands, the same bacteria were met with. Although the sections of this tumor were made, stained and mounted in Canada-balsam in January, 1884, the bacteria were seen as distinctly as ever when re-examined in September, 1885, though the purplish blue of the magenta had faded into a dark red. The next specimen, in which I met with bacteria in the nuclei of the cells, was a carcinoma of the mammary gland. There they also appeared in the form of cocci and diplococci, but, as in the preceding case, only in certain places of the section. In both instances the bacteria were strictly confined to the protoplasm of the nuclei.

In the third specimen, however, representing a carcinoma of the stomach, the bacteria were observed to develop in the same manner as those in the nuclei of the cells of tuberculous or leprous tissues, that is, commencing with the shriveling of the nucleus, and the breaking up of the margin of this body into minute fragments, and terminating in the formation and liberation of granular filaments. In this case also, the bacteria were only met with in

certain localities of the section, especially in the cells of the fibrous coat of the organ. In the fourth morbid growth, representing a so-called endothelial cancer, the whole process of development could also be traced from the shriveling of the nucleus to the ultimate formation and liberation of the bacteria, which, in some places, were met with aggregated in the form of small groups. Some of these groups were formed by three or four filaments lying at certain angles toward one another; sometimes in the form of a circuit, resembling a ring broken into fragments, and corresponding in size to the nuclei in which they had developed. Most of the filaments were more or less bent or curved.

The bacteria met with in these two last neoplasms did not exhibit the deep purplish-blue, observed on the fully developed bacteria tuberculosis and leprae when stained with magenta, but rather a purplish red. This want of deepness in the stain was undoubtedly owing to their not having as yet reached their highest development. This same phenomenon is frequently observed during the development of the bacterium tuberculosis in the nuclei of the tubercle cells, as I have once mentioned before.

The results of my examinations of these four neoplasms then show, that the development of bacteria in the nuclei of certain cells does not exclusively take place in tuberculous and leprous tissues, but also in other morbid growths, whenever the special conditions required for their evolution are present. What these conditions are, would be difficult to determine at our present state of knowledge, though it is not improbable that they may be found in a certain form of degeneration of the elements of these tissues, such as the

coagulation-necrosis, which cannot be said to be confined to the tubercle of tuberculosis. The tumors, of which I stained sections for the purpose of discovering bacteria, though representing a fair number, are far from comprising all those which I examined during the course of these investigations, as, otherwise, the number of specimens in which bacteria were met with might, perhaps, have been larger. But as the time which I could spare for the search of bacteria in other than tuberculous and leprous tissues was rather limited, I confined my examinations only to specimens which presented certain phenomena of involution or decay, and contented myself with the four instances above mentioned.

A CASE OF AGOROPHOBIA. By A. K. VAN HORN, M. D.,
Yellow Creek, Illinois.

Strictly speaking, the above named disease denotes a fear of spaces, but it also includes the kindred mental condition of a strange unaccountable dread, or terror of being alone without being able to give any reason, or explanation of why the dread is felt. While certain phases of the affection seem to point to a purely mental origin, there are also somatic troubles at times, such as sudden weakness, and tremor of the muscles, with strange sensations in various parts of the body.

Agorophobia is not a newly discovered disease, the noted Pascal having suffered from it; but it was first described by Brück, a German, in 1832, under the title "Schwindel Angst." It seems, however, not to have been closely studied, or its symptoms classified until a few years ago. In

fact, opportunities for its investigation are infrequent, as the disease is rare. The majority of reported instances occurred in adult men of education, who mostly concealed their infirmity as long as possible, lest they should be declared insane.

In order to add a mite to the history of the affection, I propose to briefly narrate a case at present under my care, which differs from others on record, in that the patient is a woman, not at all educated, nor particularly intelligent.

Mrs. Y——, a farmer's wife, residing eight miles distant, first called on me nearly three years ago, complaining of a horror of being alone in the house, and of certain strange sensations occurring from one to many times daily, that she called "spells of being nervous." She stated that her health was excellent, and every bodily function in good working order. Looking on it as a case of hysteria, I treated her with various tonics—nervines—the bromides, etc., for several months without benefit, till at last disgusted at my want of success, she ceased her visits. This spring she returned and said that for two years she had been treated almost continuously by different physicians, without benefit, and desired me to make another effort for her relief. I instituted a thorough examination, of which the following is a brief report.

Mrs. Y—— is 34 years old, mother of three children, and a good type of the well-to-do class of farmers' wives. One, at least, of her parents, and all her brothers and sisters have died of consumption; but she presents no indications of the disease. Is of large robust frame, weight at age of 18, 200 lbs.; weight at present, 165 lbs. Dark hair and skin, muscles firm, pulse 80, respiration 20, temperature $98\frac{3}{4}^{\circ}$. Bowels

very slightly constipated, urine natural, menses regular, no vaginal discharge, sleeps well, tongue slightly coated—says her mouth is foul on waking. Had a severe attack of Roseola early in the spring, which left behind a chronic irritation of throat, and a catarrhal condition of stomach. Aside from this, every bodily function seemed in perfect order, and she chiefly complained of abnormal mental sensations—the unutterable terror of being alone—an inexplicable horror of something awful about to happen. So acute is this mental distress that she has more than once assured me she would rush through a lake of fire or plunge into the wildest torrent to escape the torturing fear. When in her husband's presence, or with congenial companions she is measurably at ease; but the mere presence of company is not sufficient, the person must be to her liking. She also complains of "nervous spells," which occur from once to many times daily and lasting from a few minutes to half an hour. These come on irrespective of who may be present, though less frequent in her happier moods. During these attacks strange wave-like sensations flow up the back of the neck, her head seems to jerk, and a trembling extends to the hands and feet. At first there is a sense of chilliness soon followed by a clammy sweat. Palpitation sometimes occurs and there is always a feeling of prostration and impending death.

Her husband informs me that he has been compelled to spend the past three years almost continuously in her presence. That if he leaves the house, even momentarily, for any purpose, she instantly drops whatever she may be engaged in and frantically seeks his presence, and that in all his farm labor

she either accompanies him or a woman to her liking must be hired to remain with her. To add to his discomfort marked suicidal impulses occasionally appear in his wife, as they have in others afflicted with the disease. She is not what is termed a *nervous* woman, and has no dread of uncommon natural occurrences, as wind storms, or heavy thunder, nor has she a childish fear of night and darkness. Her mental symptoms are all summed up and condensed into a frantic, undefined horror of some unknown, awful catastrophe happening to her if left alone, and she meditates suicide only that it seems to offer a door of escape from a mental agony that language fails to picture.

After a careful investigation of her case, I am inclined to the opinion that the disease was brought on by excessive labor in the hayfield during an intensely heated term three years ago. The malady began to manifest itself soon after, and it is certain that nothing of the kind had existed before.

On learning that she had been treated almost continuously for three years, and much of the time by physicians of reputation, I confess I saw but little hope of benefiting her.

I said, however, that I would first attempt to relieve her stomach and throat, and if successful would then try to improve her mental condition. In the course of six weeks she was perfectly restored to health; but there was no improvement in her mental state. As I had previously ran over the entire list of tonics—quinine, strychnine, acid phosphate, arsenic, *et hoc genus omne* in her case, I felt it useless to recur to them again. I ordered her to take effervescing bromo-cafein, a dessertspoonful four times daily. Reported one week later, no better.

I then prescribed celerina, from one to two teaspoonfuls

four times daily. Improvement rapidly commenced, and still continues. After using it only one week her husband found that he could leave the house without her instantly following his footprints. She has so far used less than one pint of celerina, and is better than she has been for three years. Of course it is too soon to predict a successful result; but the case is reported more on account of its rarity and peculiar features than from any desire to praise a particular remedy.

EDITORIAL.

ACTINOMYCOSIS IN MAN.

An editorial in the *New York Medical Record*, of March 20th, 1886, on "A New Form of Lung Disease," states that almost all cases of actinomycotic phthisis so far observed, have been found in Germany, yet it is not improbable that the disease occurs in this country, since the researches of Dr. W. T. Belfield have shown the prevalence of the actinomyces in American cattle. "It is to be hoped that American physicians living in the West, where opportunities for observing this disease occur, will report any cases that come under their observation."

The editor of the *Record* has probably not seen a report of two cases of human actinomycosis, read at a meeting of the Chicago Medical Society, on December 15th, 1884. An account of the proceedings of that meeting is published in the March, 1885, issue of the CHICAGO MEDICAL JOURNAL AND EXAMINER, page 259.

The reporter, Dr. J. B. Murphy, of this city, seems to have been the first to demonstrate the presence of the actinomyces in the human subject, in this country, and nearly two years in advance of the suggestion made in the *Record*.

THE DAILY PRESS AND MEDICAL SOCIETIES.

At a recent meeting of the Chicago Medical Society, a motion was made to rescind the standing resolution, under which reporters for the daily papers are excluded. The motion was rejected for substantially the same reasons that led the Society to pass the original resolution. It was then claimed that reporters sought chiefly sensational matters, and that subjects of scientific interest were ignored, and the Society and its proceedings were placed in an unfavorable light before the public.

The resolution has proved inoperative, for in many instances, when anything sensational has occurred, the gist of the matter has appeared in the morning papers in a more or less garbled and unsatisfactory manner. The reporters gather their information about these matters as best they can, either from interviews with members of the Society or otherwise.

Since much of the proceedings of the Society is of interest to the public, as well as to the medical profession, if properly reported, it would seem to be well to admit reliable reporters to the meetings of the Society, and it would seem to be practicable to have such persons detailed for that duty.

PROFESSOR V. GUDDEN.

News has been received of the tragic death of Professor v. Gudden, in connection with the mysterious suicide of the late King Ludwig of Bavaria.

Professor Gudden was for many years director of the large insane asylum in Munich, and professor of psychiatry in the University. For a long time he has had in preparation a work on the anatomy of the nervous system. His views on the functions of the brain were widely known and quoted, though he had written but little. A fine laboratory in connection with the asylum contains thousands of microscopic slides and many hundreds of original drawings. The death of Professor Gudden is a loss to the medical profession, and occurring just as he was about to present some of the results of his patient and laborious work, may deprive the science of neurology of valuable contributions.

SOCIETY REPORTS.

CHICAGO MEDICAL SOCIETY.

Stated Meeting, May 3, 1886.—THE PRESIDENT, E. J. DOERING, M. D., in the chair.

DR. M. P. KOSSAKOWSKI exhibited a case of

DOUBLE HARE-LIP AND CLEFT PALATE IN AN INFANT.

He promised a subsequent report of the case.

DR. H. GRADLE read a paper on

PURE DRINKING WATER.

He said the only way of deciding the question whether the Chicago drinking water is ever deleterious to health is

to search for the number and kinds of micro-organisms it contains. The sewage is poured into Lake Michigan, the source of water supply, whenever the current in the river drifts toward the lake. It is well known that the discharges of typhoid fever—of which there are over 5,000 cases annually in the city—contain the typhoid bacilli. Any spores existing in them, and thus carried into the lake, are likely to remain alive in the water long enough for some few of them to enter the water mains. A similar danger is not unlikely in the case of other intestinal diseases, although the parasites causing them have not yet been identified. Such considerations lead one to suspect the water as the possible cause of infection, however rare.

The speaker has made some culture analyses according to the methods of Koch, and found from 1,000 to 1,500 living germs per cubic centimeter of water. Four to six varieties of bacilli are commonly met with in the water, mostly in the form of spores.

For purification the speaker recommended twenty minutes' boiling, or thorough filtration. Most filters in the market are inefficient. The Mallie aerifilter, however, was found to be practically bacteria-tight, when recently cleansed, though on continued use a few germs passed through it. It consists of a cylinder of porous clay screwed to the faucet, and surrounded by a glass cup, through which the water passes.

PROFESSOR LONG asked if it is demonstrated whether the bacteria in our drinking water comes from the sewerage or from the air.

DR. L. CURTIS said there is no doubt that water absorbs

a great number of bacteria from the air, and that these may gain entrance into the circulation through the digestive tract as well as through the respiratory tract. He said there is no doubt of the possibility of malarial germs being introduced into the system by means of drinking water.

DR. R. TILLEY wished to know if it has been actually demonstrated that the bacillus tuberculosis finds its way through our sewers into the lake and drinking water. We are not justified in saying that our water contains this element of danger until it has been demonstrated.

DR. J. ZEISLER asked if Dr. Gradle had examined the Waukesha waters and found bacteria in them.

DR. GRADLE closed the discussion by saying he took pains not to state in his paper whether he thought the disease germs found in the water were introduced by means of the sewerage or air. It is not a vital point so far as the use of the water is concerned, although if it is decided that these bacteria are introduced by means of the sewerage and not the atmosphere, it would have a bearing on the question of where to dispose of our sewerage. However, there is no doubt but bacteria are introduced into large bodies of water by means of dust, vegetation, and decayed leaves, and there is no reason to believe that the bacteria found in our water are derived from the sewerage alone. A Russian chemist had examined the water found at St. Petersburg, and found that at a distance from the city the number of bacteria per cubic centimetre was considerably less than near the city. Dr. Gradle had examined water obtained from Lake Michigan about thirty-five miles from Chicago and had found about the same number of bacteria per cubic centimetre, but a less

number of varieties than in city water. He believed the spores of typhoid fever and tuberculosis may find entrance into our lake water and become causes of disease in individuals who are not prepared to resist their attack. Dr. Gradle had never examined the Waukesha waters, but he had examined water from a spring on his own farm, which he believed to be as pure as Waukesha water, and had found only fifteen to twenty bacteria per drop, and only three varieties. He believed that spring waters are the purest, as the bacteria they contain cannot be due to sewage.

DR. W. H. LYFORD read a report of a case of

SCLERODERMA.

A girl, æt. 10 years, apparently healthy and of good family history. Five years ago she received a shock from a lightning stroke. Shortly afterward her parents noticed, under the surface of the skin over the outer region of the left forearm, a delicately traced symmetrical figure, branching and ramifying in purplish colored lines with singular regularity. Dr. Lyford believed the lightning had paralyzed the cutaneous branches of the musculo-spiral nerve, and caused congestion of these filaments, with the marking as a result. In due course of time the skin has undergone the changes that take place in scleroderma. There is hyperæsthesia accompanied by pain, especially at night. The patch is also now slightly elevated above the surrounding healthy integument, and is only slightly movable, while at the elbow it is attached to the fascia and sheaths on the tendons, thus interfering somewhat with the movements of the forearm.

DR. J. ZEISLER said he had seen four cases of scleroderma, two of general scleroderma and two of partial scleroderma.

The first two cases he saw in one of Kaposi's clinics. Their appearance was striking. In scleroderma the features of the face are immobile, and therefore the patient cannot express the emotions. The skin and underlying tissues seem to grow together. The cases of partial scleroderma he had seen in this city. In one patient the patch of scleroderma was a ribbon-like band behind one ear, pinkish in color, immovable upon the underlying tissues. The other case was a lady *æt.* 50 years, who noticed her right mammary gland was becoming hard, large, and the nipple contracted. There was no pain in the breast nor were the axillary glands involved. The skin was hard and adherent to underlying tissue. A similar condition was observed in a patch of skin on the right arm. Kaposi states the majority of cases of scleroderma occur in females. The best treatment for scleroderma is massage and galvanic electricity.

DR. H. GRADLE presented some stereoscopic views of sections of hypertrophied tonsils taken from Troutman's book on "Hypertrophied Tonsils," after which the Society adjourned.

CHICAGO MEDICAL SOCIETY.

Stated Meeting, May 17th, 1886.—THE PRESIDENT, E. J. DOERING, M. D., IN THE CHAIR.

PROFESSOR EDMUND ANDREWS exhibited a

NEW EVACUATOR FOR LITHOLOPAXY,

and said that one serious defect of Bigelow's and Thompson's evacuators is that the rubber bulb makes suction only for an instant instead of continuously, thus allowing fragments of stone which lie along the tube to be thrown back into the bladder when the bulb is compressed, thus irritating the bladder as

well as causing it to be repeatedly expanded. To obviate these difficulties Professor Andrews has had constructed an evacuator in which the essential features consist in a double-chamber evacuating tube, straight or curved, the upper chamber being composed of thin metal $8\frac{1}{2}$ millimetres in diameter, terminating in a round tip with fenestrum for evacuating, the under chamber being semi-cylindrical, fitting under the upper chamber so as to make the whole tube oval-shaped, with a diameter of $31\frac{1}{2}$ millimetres. To the under or inflow tube is attached a rubber tube three yards in length, with an inside diameter of one centimetre, to the outer end of which is fitted a metallic strainer large enough to admit without resistance all the water which will flow through the tube. A bucketful of warm carbolized water, $1\frac{1}{2}$ per cent, is hung over the operating table high enough for the surface of the water to be forty-two inches above the pubis of the patient. When it is desired to wash out the bladder the evacuating tube is introduced with the fenestrum towards the patient's head and the tip of the tube pressing towards the rectum, thus making a hollow in the bladder into which the fragments of stone fall. The strainer having previously been introduced into the warm carbolized solution and the rubber tube filled, this tube is attached to the inflow tube and the stopcock turned. The water now enters the inflow tube and passes into the bladder through the small perforations with sufficient force to rapidly drive the fragments of stone through the fenestrum and out of the evacuator. The current is continuous and rapid; in a recent case of litholopaxy where the calculus was hard oxalate of lime an inch in diameter the fragments were washed out in ten seconds. When the inflow tube is closed by a fragment of stone in the fenestrum the operator simply presses on the

last four inches of this tube, which is of rubber, and this dislodges the fragment.

Professor Andrews also called attention to a device for securing to any instrument filiform bougies by means of a split screw passing over the bougie secured by a nut, both fitting into the outer end of the catheter.

DR. W. T. BELFIELD opened the discussion by saying that the disadvantages of the ordinary evacuating apparatus mentioned by Dr. Andrews were well recognized, and that the apparatus exhibited seemed adapted to remove them. It possessed, however, one element of danger, namely, the possibility of undue distension of the bladder through sudden clogging of the exit tube. In cases of concentric hypertrophy, where the bladder can contain only three or four ounces, the continuation of the powerful inflow might, if the exit were obstructed, cause serious damage. Of course if the clogging is immediately discovered, a prompt use of the stopcock would prevent injury.

As to the urethral instrument, he would wish to be sure that the filiform bougie could not be detached beyond the stricture. This danger attaches, of course, to all methods of securing the filiform, but would seem to be especially great in the arrangement exhibited. The loss of a filiform in a tight stricture is an extremely uncomfortable accident; in several cases surgeons have even made external urethrotomy to recover it.

To Professor Andrews's remark that in case of such an accident urethrotomy is readily avoided by inserting a small lithotrite into the bladder and seizing the filiform, Dr. Belfield replied that when there is present a stricture so tight as to require patient work to get a filiform to pass, a small lithotrite

could hardly enter the bladder unless reinforced by a sledge-hammer. If the urethra is everywhere large enough to admit a small lithotrite, there could be no danger of losing a filiform because there would be no occasion to use one.

DR. FENN wished to know, if the momentum could be increased by increasing the specific gravity of the fluid, what would be the effect of a greater elevation of the reservoir?

Professor Andrews said that the attachment of a flexible guide to the urethrotome is always a source of care lest it become detached. This was less liable to occur with his instrument than in the old way. In case it should happen the lost guide could be seized and drawn out with a lithotrite.

The question of the pressure of the fluids and the strength of the bladder is one of great interest. But little is known about it. No more force should be used on a distended bladder, certainly, than a normal one could readily endure. We get the measure of this to some extent in the pressure of the expulsive power of the organ, which is a safe limit to keep inside of in the absence of other data. The pressure which Bigelow's evacuator ordinarily gives may form another guide, as this is known to be harmless. The reservoir must not be placed so high as to cause dangerous distension, should the outflow tube become obstructed. In practice forty inches had given all the current needed, and this was doubtless a safe pressure to use in any and all cases.

DR. JAMES I. TUCKER read a paper on

UNDIAGNOSABLE MALADIES.

These cases generally are not recorded because there is so little about them that is tangible. They are perhaps functional

derangements simulating organic diseases. Sometimes these cases yield readily to simple remedies, but are puzzling because so evanescent. At other times they are graver, often ending fatally and yielding no facts upon post-mortem examination which will aid in a correct diagnosis. But the list of undiagnosable ailments is rapidly decreasing; for example, Richard Bright in 1827 explained that dropsical effusions are frequently due to diseases of the kidneys. Thomas Addison in 1855 ascribed to disease of the suprarenal capsule the cause of a form of anæmia accompanied by a dingy discoloration of the skin. Until recently herpes zoster frontalis was classified among skin diseases, but now with much accuracy it is traceable to disease of Gasser's ganglion. Dr. Tucker related a case in which a lady had been twice badly frightened and her nervous system had been severely prostrated. At intervals she was attacked with an epileptiform seizure, transient paralysis of the entire left half of the body, constriction of the larynx, a state of trance, and finally a trance-like state in which she had died. This patient's mother, after a period of nervous disorder, had become a paraplegic, her father was temporarily insane, the eldest brother has an undefinable nervous disorder and a younger brother spasmodic asthma, while a sister has attacks of recurrent chorea major. In this peculiar group of nervous disorders what is the underlying cause? It is as yet unknown. This case illustrated the difficulty which hedges about the diagnosis of hundreds of cases of disease.

DR. PEARSON illustrated the difficulties physicians have to overcome in making a diagnosis by reason of the fact that they overlook some points in the history of a case, as in a case in which a patient had swallowed a piece of a metal spoon and it had lodged in the duodenum and blocked up the portal vein.

DR. W. T. BELFIELD presented specimens of

ANCHYLOSOTOMUM DUODENALE.

These had been referred to him for verification by Dr R. W. Gelbach, of Mendota, Ill., who had discovered them in the intestines of young cats that had died of anæmia. Dr. Belfield confirmed Dr. Gelbach's identification of the worms, but for further verification sent them to Professor Joseph Leidy, of Philadelphia, who replied he thought they were anchylostoma, although he had never seen authentic examples. Dr. Belfield said the anchylostoma are small nematode worms, about half an inch long, which inhabit the duodenum of men and cats, and probably of other animals. Discovered in 1838, their pathogenic significance was recognized by Griesinger in 1851, who found in them the cause of Egyptian chlorosis. They are veritable leeches which fasten themselves to the intestinal mucous membrane and suck the blood of their host. When present in large numbers they induce pernicious and fatal anæmia by exhausting the individual's blood. In tropical climates, particularly Egypt and Brazil, cases of pernicious anæmia or chlorosis produced by them are quite frequent; in Brazil such cases are quickly cured by administering the pulp of fresh figs, which destroys the worms. Quite recently anchylostoma have been searched for and found in patients dead of pernicious anæmia in Germany. So far as Dr. Belfield knew, Dr. Gelbach is the first to discover the worms in the northern States of the Union. Their presence in cats makes it probable that they infest human beings also in this latitude. The possibility of this cause of pernicious anæmia should therefore be

kept in mind, especially when other recognized causes—chronic nephritis, malaria, etc.—cannot be detected.

PROFESSOR E. ANDREWS asked if these worms were ever found in sufficient numbers to cause death, and he was answered affirmatively.

PROFESSOR W. W. JAGGARD exhibited the head of the *tænia mediocanellata* obtained in the practice of Dr. C. G. Smith. The following was the formula used:

R. Chloroformi	f ʒi.
Oleores. felicis maris.....	f ʒi.
Ol. tiglii.....	gt. i.
Aquæ camphoræ.....	f ʒii.
Gum. acaciae q. s. ft. emuls.	

MICHIGAN STATE MEDICAL SOCIETY.

The twenty-first annual meeting of the Michigan State Medical Society was held at Jackson, June 9th and 10th. There was quite a large attendance of representative medical men from all parts of the state. The meeting was called to order by the President, Dr. E. P. Christian, of Wyandotte. Professor Stark, of the Congregational Church, opened the session with prayer. The address of welcome was made by Mayor Bennett. Dr. Main presented the report of the Executive Committee and invited the members of the society to attend a reception to be held at Assembly Hall tomorrow evening. Professor Frothingham presented a report on Ophthalmology. A paper on Foreign Bodies in, and inferior to, the Eyeball, by Dr. Connor, of Detroit, was of much interest. "A proposed plan of Sanitation" was the subject

of a paper by Dr. Wight, of Detroit, and a select committee was appointed to present the subject to the next legislature. Professor Maclean gave some recent experiences in surgery, which were interesting and well received. The two first hours of the afternoon session were taken up with papers relating to diseases of females and discussions of the papers. The evening session opened at 8 o'clock. The President read his annual address. Dr. Brown, of Detroit, read a paper entitled "Irritation of the Alimentary Canal." The subject was quite freely discussed. Several motions relative to miscellaneous business were passed. Dr. Ward, of Langsburg, read a humorous poem entitled "Medical Milk." The charges which were brought against Dr. Kellogg, of Battle Creek, for unprofessional conduct and were not sustained by the County Medical Association, were brought before the State Society and were referred to the Judicial Committee. A paper entitled "Some Special Points for Operative Surgery," by Dr. De Camp, of Grand Rapids was well received. Dr. Sullivan, of Ann Arbor, presented a paper entitled "Observations on the Administration of Chloroform." Dr. Herdman, of Ann Arbor, read an interesting paper on "Convenient Manner of Handling Patients Afflicted with Spinal Disease." Dr. Clark presented a paper entitled "Disinfectants and Sanitation." Dr. Long, of the U. S. Army, read a paper on "Small-Pox Inspection Service." A large number of applications for membership were favorably acted on. On motion, five hundred dollars was voted to the International Medical Congress to be held at Washington next season. The next meeting of the society to be held at Lansing, and the time of meeting changed to

Thursday and Friday instead of Wednesday and Thursday, as heretofore. Dr. Ranney, the Secretary, read an interesting report of the society since its organization. The Doctor has been a most efficient secretary for twenty-one years, but owing to the fact that he would spend most of the coming year abroad, he would be compelled to decline a reelection. The Doctor was made an honorary member. The Nominating Committee reported as follows : *Vice-Presidents*, Dr. Walker, Dr. Hemingway, Dr. Stoddard, Dr. Newkirk ; *Secretary*, Dr. Duffield ; *Treasurer*, Dr. Hagadon ; *Judicial Committee*, Dr. Boise, Dr. Main, Dr. Christian.

TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL SOCIETY.

LXVI Regular Meeting, April 23rd, 1886.

I.—CALDWELL. *Report of a Case of Hernia of the Umbilical Cord.*

• II.—BARTLETT. I.—*A Case of Dermoid Cyst Complicating Labour.*

2.—*A Case of Placenta Prævia in which the Placenta was Expanded Over the Entire Ovum.*

The PRESIDENT, DANIEL T. NELSON, M. D., in the chair.

DR. CHARLES CALDWELL read a paper entitled,

REPORT OF A CASE OF HERNIA OF THE UMBILICAL CORD.

I was called August 10th, 1885, at 6 P. M., to attend Mrs. C., who was in labour with her ninth child. I made an examination and found a vertex presentation, first position ; os well dilated but no bag of waters had formed.

The first stage of labour was completed at 7 P. M., and the second an hour later. The child, a female, was quite large with very broad shoulders, which were difficult to deliver,

As soon as the child was expelled, I discovered she had a large umbilical hernia. I ligatured the cord and gave the child to the nurse, who removed it to another room, that the mother might not be alarmed at sight of the tumor.

The placenta was expelled by Credé's method and the uterus contracted firmly under pressure of the left hand.

After the binder was applied and the mother made comfortable, I examined the tumor more carefully. It was as large as a small orange and of similar shape. The circumference in the largest place,—the center,—was about ten inches. The diameter of the orifice or abdominal opening, two inches. The sac was translucent and the viscera,—intestines,—could be distinctly seen when the child cried and forced them out. The umbilical vessels were on the left side of the sac. The skin was projected from the abdomen on to the side of the sac at its base about half an inch.

Diagnosis.—Hernia of the umbilical cord.

Pathology.—Ectopia of some or all of the abdominal viscera at the point of insertion of the umbilical cord, is usually due to an arrest of development of the abdominal parietes, and failure of the intestines originally projecting into the vitelline duct to return into the abdominal cavity.

Simpson thinks it may sometimes be traced to peritonitis. Cleft abdominal walls, a similar arrest of development to that of cleft sternum, may exist in the muscular structure of the front of the abdomen, which may expose the whole contents of the abdomen, or the central line of the abdomen may be weak from deficiency of muscular structure.

If the orifice is very small, it can be treated successfully by a simple compress and adhesive straps. But if large, nothing except a plastic operation is indicated.

The coverings of the hernial sac are, from without inwards (a) amnion, (b) peritoneum.

Treatment.—After examining the sac thoroughly I was convinced that nothing but surgical interference could save the child's life.

I called our President and Dr. Jaggard by telephone, but both were too busy to assist me that night. They both recommended a cork compress held in position by adhesive strips, evidently thinking it an ordinary case of umbilical hernia.

I decided not to operate until the next day, and enveloped the sac with absorbent cotton, retaining it in place with a loose band.

The next afternoon, Drs. Dudley and Jaggard met me in consultation. After examining the little patient, they decided with me, that nothing but surgical interference would give her any chance of life, and kindly assisted me in the operation.

It was decided not to give an anæsthetic. Dr. Jaggard seizing the sac, gently forced its contents, the viscera, back into the abdominal cavity and I ligatured it as close to the abdomen as possible, but did not draw the ligature perfectly tight. At the suggestion of Dr. Dudley the sac was now opened, to be sure no portion or loop of the bowel was confined by the ligature.

The peritoneum being opened, the index finger was passed into the abdominal cavity to hold back the bowel and protect it from the points of the hare-lip pins, which were passed at right angles to each other through the narrow piece of skin at the base of the sac. Two more ligatures, carbolized silk, were applied beneath the pins and were drawn tight enough to close the opening. The outer layer of the sac was trimmed off

leaving a stump one and a half inches long. Dr. Dudley passed a gathering suture round the stump sealing it more tightly. This completed the operation; after which the stump was dressed with iodoform,—a narrow strip of carbolized gauze passed beneath the pins,—several layers of absorbent cotton and a roller bandage. The child was restless that night, crying several times, but slept well the next day. I dressed the stump every day, reapplying a similar dressing. The bowels moved naturally until the 16th, when I discovered some faecal matter on the dressing as I removed it.

On the 17th, all the faeces passed through the fistulous opening. The members of the family were very much alarmed and wished me to close the opening at once. I assured them that nature would close it without any further surgical interference.

I called on Dr. C. T. Parkes for his advice. After hearing the history of the case he said it would undoubtedly close by granulation in a few days.

For four days all the faeces passed by the fistulous opening, but on the fifth there was a little stain on the diaper. On the sixth more and on the seventh all the faeces passed *per rectum*.

The family were happy once more, for the fistula had closed. There were no symptoms of peritonitis at any time. Neither vomiting, tympanites nor pain. The patient did not cry more than babies generally do, but nursed and slept nicely, requiring no unusual care.

The bowel, at point of perforation, was held firmly bound to the abdominal walls by lymph, which was thrown out.

From this time the wound healed very rapidly. The end of the stump sloughed, leaving it quite short. The small

intestine was probably the one perforated, for there was no odor to the discharges.

What caused the rupture of the bowel to take place I am unable to say. Probably, either a portion of the bowel was caught, and became strangulated by the ligature, or it was punctured by a pin, as that instrument was inserted.

Dr. Dudley says the surgical operation was certainly a laparotomy, for the abdominal cavity was opened and the index finger introduced.

DISCUSSION.

PROFESSOR DE LASKIE MILLER said he had seen numerous cases of hernia but thought this specimen was possibly more extreme than any he had seen.

THE PRESIDENT asked Professor Miller in how large a hernia he would deem operative procedure, of a plastic nature, necessary.

PROFESSOR MILLER did not think it possible to state, by actual measurement; so much depends upon the condition of the tissues surrounding the opening, that the absolute diameter of the opening would not be the governing principle. If the borders of the opening are of considerable thickness and the tissues well developed, it would be possible to reduce and probably cure a hernia independently of any cutting operation. He inferred that in the case described in the paper there was a deficiency of all the tissues except the peritoneum and the amnion, the skin projecting upon the sac one-half inch around the opening. He thought there was another explanation possible in this case, viz., that the duct leading from the umbilical vesicle remained or became patulous and the faecal matter passed out through that; for the duct can be seen in the cord, even at delivery, in some cases. He inquired as

to the cause of the arrest of development of the abdominal parietes in such a case.

DR. EDWARD WARREN SAWYER thought it not a very unusual thing to find a prolongation of the intestine into the cord. He once came very near tying the cord including a loop of intestine, so near that he had since observed the rule to always satisfy himself, by careful manipulation of the cord, that it contained no loop of intestine, and this routine practice had revealed the fact that very often a suspicious enlargement of the cord is found, sometimes extending three-fourths of an inch above the level of the abdominal wall and the intestine, or portion of the omentum, is not infrequently projected into this *cul de sac*. He thought in the majority of cases nature would take care of the condition without any attention from the attendant. He had never seen so large a hernia as that described by Dr. Caldwell, and did not understand why it should have assumed a spherical shape; he could understand how it might be pyriform or sausage-shaped, and extend an inch or two into the cord, but how the cord could suddenly dilate and form a large globe, and this globe be followed with the contents of the abdomen, it was difficult to comprehend.

DR. SAWYER inquired what there was about this case that enabled the physicians to decide so quickly that an operation must be resorted to in order to save the child's life. To him an operation would have been a second consideration. Dr. Jaggard evidently reduced the hernia without difficulty, and having reduced it, it seemed to Dr. Sawyer that a well applied bandage would have secured it. The operation was brilliant and creditable, but he thought an operation should have been considered, after the attendants had failed utterly to secure the hernia within the cavity by a well applied bandage.

It was stated in reply to questions that the child presented no symptoms; the hernia was reduced by Professor Jaggard; the tumor about the size and shape of an orange; the operation was performed the day after birth; there was no evidence of strangulation of the gut.

DR. SAWYER said that Dr. Caldwell had assured him that he was certain that in passing the hair-lip pins no part of the intestine was included, and the finger was introduced to push everything beyond the reach of the pin. Dr. Sawyer thought, however, that the centrifugal pressure must have been considerable, and the contact quite severe. He thought it strange that none of the fecal matter escaped into the peritoneal cavity, although there were adhesions between the intestine and abdominal parietes.

THE PRESIDENT : Of course every case must be decided on its merits, but might we not hope for the closure of the opening of an inch and a half in diameter, provided the tissues are well developed around it, without a cutting operation? It would seem possible to close as large an opening as in the case under discussion by simple adhesive strips. He had seen one case that reminded him of this: the opening was not nearly as large, it did not exceed three-fourths of an inch in diameter, and the length of the sac was much longer than the opening. Into this sac there was projected a solid body. As the child afterwards died, he found it was the *lobus Spigelii* of the liver. It was so conical, or heart-shaped, that the anatomy could not be made out until after death. The instruction to him in that case was the importance of not including any of the abdominal tissues by the ligature that might be passed around. He was careful to pass the ligature around the umbilical cord so as not to

include the sac, but it might readily have been passed close to the abdomen and made to include the solid tissue, which, as he afterwards found, was a portion of the liver. The child died, not from the hernia, but from some want of development which he was unable to find out, no careful *post mortem* examination being allowed, but he believed there was lack of foetal development necessary to life. The child was fairly well developed and seemed as if it should have lived, so far as this slight defect was concerned.

The PRESIDENT asked if any one could suggest the reason for the faecal fistula. It seemed to him that in this case it was the result of inflammation caused either by pressure against the pins or the ligature; if the intestinal wall had been punctured by the pins, the physician would have seen evidences of it earlier.

PROFESSOR J. H. ETHERIDGE inquired whether this was not the youngest laparotomy on record. He wished to know if it would not be possible to crowd back the viscera and then hold them in place with adhesive strips.

PROFESSOR T. D. FITCH said that he had not had experience with congenital hernia at birth, but had seen it occur within twenty-four hours afterward, and had successfully closed an opening an inch or an inch and a quarter in diameter by the ordinary method, viz., compress and bandage.

Professor Fitch had had very peculiar success in the treatment of infantile umbilical hernia, by the ordinary means, and he should hesitate very long about an operation until he had tried all the ordinary means. His method of treatment differed somewhat from the ordinary treatment, however, in the adoption of an elastic web bandage instead of the ordi-

nary bandage or adhesive plaster, and he thought it far superior to an inelastic bandage, as it gave the child room for an accumulation of intestinal gases, which very often become painful when a fixed bandage is placed around the abdomen. He first applied a hard compress, like a button-mole—(plano-convex)—to cover the opening. This should be large enough to extend three-eighths of an inch beyond the margin of the opening, and should be covered with one or two thicknesses of fine soft muslin. After returning the protruded substance *perfectly*, the compress should be fixed in position by short adhesive strips, then apply the elastic webbing around the body of the child tolerably tight and let each turn of the bandage lap the previous one half its width, making a sufficient number of turns to cover six or eight inches of the abdominal surface vertically. He would leave this on, undisturbed, unless the child became restless, or exhibited some indication of injury—for a month or longer before removing it. He had never found that the skin suffered from the confinement of the perspiration.

Another advantage was that the elastic webbing being rough and the laps of the bandage holding each other, it always stayed in place, and held the button firmly and so secured the opening against any possibility of protrusion. He had used this method successfully for about thirty years. He had a case at Waukegan which occurred twenty-four hours after birth; did not attend the mother at the birth, but was called to treat the hernia which was reducible, and would gurgle in and out at almost every respiration, bulging out as large as an English walnut.

He visited the child only once and told the parents to remove the bandage at the end of four weeks, when the opening was found entirely closed. The child is now nine or ten years old, perfectly healthy and always has been.

DR. CHARLES CALDWELL: The Fellows of the Society have evidently misunderstood the nature of the case described in the paper. I am sorry that such obscure and confused conceptions have been conveyed. The case was one of hernia of the umbilical cord, consisting in "the escape from the abdomen, at the point of insertion of the cord," of some of the foetal abdominal viscera, and was due either "to arrested embryonic development, preventing the complete closure of the abdominal cavity, or failure of the foetal intestines, originally situated outside the abdomen to enter the same" (Lusk). The remarks of most of the Fellows are accordingly irrelevant.

As no one who witnessed the operation was present at the discussion of my paper, several questions were unanswered.

DR. SAWYER wished to know why we decided so quickly that surgical interference was necessary to save the child's life?

The consultation was held about twenty hours after the birth of the child, and at that time the outer layer of the sac, the amnion, was dark and gangrenous in several spots. Its nutrition was cut off when the cord with its umbilical vessels was ligated, and it would have sloughed off in a few days leaving the viscera covered by the peritoneum only. We were of the opinion that such a condition as then existed would be followed by general peritonitis and death without some surgical operation.

DR. BYFORD wished to know the literature of the subject. I have been able to find but one case similar to mine.

Thomas Bryant, in the last edition of his "Surgery," mentions the only case he ever saw and his treatment. In June, 1876, a child, one day old, was brought to him with hernia of the cord. The sac was translucent, the size of a small egg, and contained the cæcum and vermiform appendix. He pressed back the bowel with the thumb and forefinger, stitched up the cord at the umbilical orifice with deep sutures and ligatured the cord itself at the apex of the congenital hernial sac.

Recovery was complete without a single bad symptom. He recommends his operation in all similar cases, evidently considering it the only treatment indicated. So we were supported by the best of authority, in operating instead of trying to apply a compress. Should I ever meet with a similar case, I would perform an operation different from either Bryant's or mine.

I would first remove the amniotic layer of the sac, if it could be separated from the peritoneum, excising or amputating it at its junction with the skin, return the viscera and peritoneal sac to the abdominal cavity and close the abdominal opening as in a case of exploratory incision, or simple laparotomy. Either incising the peritoneal sac to better protect the bowels from needle points, or stitch to the bottom of the wound by deep sutures, and support the sutures by adhesive straps around the abdomen.

I would recommend this operation after observing how quickly the amnion sloughed away. It might just as well be removed at once if it can be easily separated from the peritoneum.

DR. JOHN BARTLETT made remarks upon, (with the exhibition of specimens of)

(I)—A CASE OF DERMOID CYST COMPLICATING LABOR.

(2)—A CASE OF PLACENTA PRÆVIA IN WHICH THE PLACENTA WAS EXPANDED OVER THE ENTIRE OVUM.

Dr. Bartlett said, "I have recently seen two interesting cases of labor, and I wish to present a specimen obtained at each of these, to the SOCIETY.

The first was a case in which I was called to assist Dr. John S. Clark. The patient, a primipara, about thirty years old, had been in labor under the care of a midwife about twenty-four hours. The head was making no progress, and exhaustion was approaching; about one ounce of fluid extract of ergot had been given. Dr. Clark found the head lying with the antero-posterior diameter corresponding with the conjugate, the parietal eminences had passed the brim. He applied an old style, high curve, Bedford's forceps, but found his efforts unavailing in causing the head to advance. Dr. Bartlett then attached his direct traction handle, and descent of the head was effected. After delivery of the head there was difficulty in delivering the shoulders. When an effort at extrusion was made, there appeared in the perineal region, between the vulva and tuberosity of the ischium, a jutting outward of the tissues in the form of a tumor. It seemed as if an obstructing body was wedged in front of the shoulders. Counter pressure was made upon the protrusion, and the delivery was completed. Following the child, came a tumor of the shape and size of a large pear, presenting at the small extremity a pedicle. It was a thin dermoid cyst containing a mass of fatty substance, embedding numberless long intertwining hairs. The tumor could not be felt during labor, and a careful inspection showed that it had not been attached to the child. It was probably attached to

the uterine surface, resting between the head and the shoulders. Possibly it was the cause of the dystocia in diverting the head from an oblique diameter of the brim. Depression of the vital powers with high fever set in soon after delivery, resulting in death within four days. Dr. Clark's examinations *post partum*, detected no injuries beyond laceration of the perineum. The child was still-born.

The second case was one of *placenta prævia*.

Mrs. N. had had several children, and within eighteen months past, two miscarriages. In January last, when she was nearly four months advanced in pregnancy, I was called because of serious hæmorrhage. The uterus presented to the touch nothing peculiar, there was none of that extra development of the lower segment of the organ which is supposed by some to indicate *placenta prævia*. The tampon was applied, opiates given, rest enjoined, and the bleeding ceased. At four and one-half months the hæmorrhage recurred. Under treatment, the bleeding was in some measure controlled. For the two following months it was continuous, generally moderate, occasionally quite severe, at all times, as she declared, four-fold greater than the flow of menstruation. I then deemed it best at six and one-half months to induce labor, but Dr. John S. Clark, in consideration of the probable non-viability of the child, advised further delay. The flow, however, was so great that the tampon was applied, and in forty-eight hours thereafter labour began.

Upon removing the plug, the os was found thin, softened, and three-quarters of an inch in diameter. At about the fourth hour of labour, the os rather suddenly enlarged to a

diameter of one and a half inches, and the hæmorrhage became profuse. The half hand was introduced into the vagina, and the placenta stripped off over an area, the radius of which was three-fourths the length of the middle finger. With the bullet forceps, used by me with advantage in such cases, the membranes were torn, and the opening so made was freely enlarged by the finger. Hæmorrhage immediately ceased, and labor became more active, so that in the course of an hour the child was delivered, breech first. Several inspirations were made by the fœtus, a fact of interest in view of the peculiarities of the placenta, which I here present. In order to display the specimen to better advantage I have filled the cavity of the membranes with horse hair and sewed up the aperture. It will be observed that the main body of the placenta, the normal placental mass, is not *præ-via*, but attached near the fundus, and that the rare anomaly is here presented of a continuous placental tissue spreading over the entire ovum. Observe that the extra, adventitious portion, continuous with the normal placental edges, and everywhere enveloping the membranes, is comparatively thin; in the present state not thicker than one-eighth or three-sixteenths of an inch.

PROFESSOR W. H. BYFORD spoke of a specimen he exhibited some time ago at the Chicago Medical Society—a dermoid cyst which was expelled from the vagina. It was sent to him by Dr. White, of Bloomington, who said the tumor was situated in the anterior wall of the vagina, and as the child was delivered the pressure of its head pushed the tumor out before it. He thought that in the case under discussion the tumor may have been developed in the vaginal walls. The localities

of these growths are not uniform and we find dermoid cysts situated in the vaginal walls. Dr. Bartlett said in answer to a question from Professor Byford that the existence of the cyst was not discovered before but during labour; that it was beyond the head and may have been an ovarian tumor; it was not outside the vagina, but between the head and shoulders. He thought it almost certainly a dermoid tumor of the vagina.

PROFESSOR W. H. BYFORD thought that these cases are almost always found in old or multiparous patients.

With reference to Dr. Bartlett's second case, he asked if the hæmorrhage ceased before rupturing the membranes, or if the whole operation was done at once. Barnes claims that if the membranes are separated over the cervical zone the hæmorrhage will stop; that there will be sufficient retraction of the cervical zone to close up the mouths of the vessels. He thought it a point of interest to know whether or not that would have stopped the hæmorrhage, and whether it would not have been sufficient. He thought in that case one is not called upon to leave the membranes intact.

PROFESSOR DELASKIE MILLER said that the effect of endometritis is usually to increase the area of the development of the placenta, and he had not infrequently seen cases of placenta of the usual size, on which projections appeared in different parts in the interior of the uterus, partially connected or entirely disconnected. He asked whether a case of endometritis might not allow the villi of the chorion to form these *placentæ succenturiatæ*. He was inclined to think that condition would encourage it. Another fact in the history of the case that would perhaps justify this theory was the several miscarriages the patient had experienced before this pregnancy.

PROFESSOR T. D. FITCH said that in thirty-five years of

practice, in which he had probably attended more than a thousand cases, he had seen but one case in which he suspected *placenta prævia*. He was sometimes ashamed to make the statement for fear his experience had been from lack of close observation, or inability to recognize a case, but he had seen only one, and did not know that that was really a case of *placenta prævia*. He did not detect it by manual examination; the symptoms were altogether subjective. It was a seven months' labour and the child lived. There was a good deal of hæmorrhage. He had no difficulty with the labour, except from the hæmorrhage, and that did not prove serious.

THE PRESIDENT asked if any one could suggest the origin of the tumor? Was it a twin or a dermoid thrown off from the fœtus, or was it from the mother. He asked Dr. Bartlett if it was a part of the child, and was answered that after careful examination no place was found where it might have been attached. It was perfectly loose in the vagina; probably the pedicle had been ruptured.

DR. EDWARD WARREN SAWYER thought (with reference to the second case) the case had several very interesting features, and the subject itself is full of interest. He referred to a conversation earlier in the evening in which Professor Byford had said that he had been in practice many years before seeing a case of *placenta prævia*, and the first case he ever saw was the first of three in one night. It had happened to Dr. Sawyer to see a number of cases of *placenta prævia*. He had had two fatal cases and had learned something of early diagnosis, which had been profitable to him since, and he thought of it in the obscurity

of the diagnosis in Dr. Bartlett's case. He said that in one of his cases, after reading of the ease with which one could auscultate the lower segment of the uterus under these circumstances, he prolonged his stethoscope with a long flexible tube, put a cup on the end of it and had no trouble in introducing it into the woman's vagina. He had repeatedly detected portions of the cervical attachment of the placenta by this mode of auscultation. The remark made by Professor Byford had received some confirmation in his experience, viz., that many cases of *placenta prævia* aborted early and that he believed this to be a frequent cause of early abortion. Spiegelberg says that *placenta prævia* is of very frequent occurrence. An interesting fact in connection with Dr. Bartlett's case was the alarming amount of hæmorrhage which took place from the placenta and placental attachment away from the main part of the placenta, or in other words, there were sinuses in the cervical zone of this uterus which were covered only by the velamentous portion of the placenta, sinuses large enough to bleed, and exsanguinate the woman. Dr. Sawyer spoke of a case to which a former pupil of his was called. A midwife summoned him at midnight to see a woman who was bleeding to death. As he entered the room she handed the doctor a cord (the child was delivered), and the placental end of the cord was a disk about as large as a butter dish. That fleshy mass had been pulled directly from the placenta and the woman was actually bleeding to death. This little mass was very thin and he was at a loss to understand to what part of the placenta it could have been attached. He delivered the woman completely and she was saved. He found a

hole through the placenta corresponding to the disc which had been pulled out, it was in the thin portion of the placenta, and the bleeding was somewhat alarming. Referring to the question that Professor W. H. Byford asked concerning the mode of treatment advocated by Barnes, Dr. Sawyer said he was full of the idea, and the feasibility of it was accepted by him in his first reading of Barnes' work, and he tried to adopt it in practice, but he hoped no one would ever get himself into such a dilemma, as he was sure he lost his patient by that course. Theoretically you may detach enough of the placenta to save the woman from hæmorrhage. The so-called cervical zone is not to be measured by the finger, he did not think it had any definite boundaries; it might sometimes extend half way to the fundus on one side of the uterus and he thought the more we detach the more dangerous it may become. He felt quite confident that the poor woman who was the victim of the theory of Barnes would not be dead to-day if he had adopted a more rational treatment.

There was one point in connection with the causation of *placenta prævia* that excited a great deal of interest in his mind. He had seen two cases strangely confirmatory of the movement of the ovum in the early days of its sojourn in the uterus. One case was also seen by the PRESIDENT, but he had never spoken to him of the theory which the examination of the placenta had been the origin of. Dr. Sawyer had written to several prominent obstetricians of this country, asking if they knew anything in the literature which would answer the question: Can the ovum once attached to the decidua of the uterus become detached and again attach itself to the lower

part of the uterus and go on through pregnancy? In other words, can the ovum detach itself, drop from the top of the uterus to the bottom, re-attach itself in the cervical region. Many learned men replied that they had never heard of such a possibility. But Dr. Harris, of Philadelphia, hit upon this happy expression: "Rotation of the ovum." He had seen two cases in which he thought the ovum rotated in the earliest days of pregnancy; not a complete rotation, but an almost complete detachment and rolling, or rotating, downward and there attaching itself. The second case was in the practice of Dr. Doering. The subsequent examination of the placenta showed a case of partial *placenta prævia*. The umbilical cord springs from the margin of the placenta in both instances; and his theory was that in the first case, which was that of a young primipara, the placenta was fixed normally at the fundus and the cord sprang from the middle; there was a history of a sudden jar of the body when she was about three weeks pregnant; she jumped from a high wagon and immediately flowed a little, and when she came to be delivered she had a complete *placenta prævia*. The examination of the placenta showed that the cord was attached to one margin, showing that it had rolled down and formed a new attachment for the umbilical cord. When the placenta was at the fundus and the cord at the middle, by its rolling downward it placed the cord at the margin. He thought one of the most important causes of *placenta prævia* is this rotation of the ovum very early in pregnancy; a rotation that may be caused by a sudden jar, and he thought the confirmation of it is in the unusual attachment of the cord.

PROFESSOR J. H. ETHERIDGE had seen one case of a woman with *placenta prævia* with twins. At about the fourth month the

woman fell and struck the lower part of the abdomen against the top of a wash tub, she had a little hæmorrhage, and from that time till term she was always tender at that spot. Free hæmorrhage took place and he was called to see her. The woman was delivered of a mature fœtus, and of a child that was evidently arrested in development about the fourth month. The theory formed was that there was a partial detachment of the second placenta, the other child went on and developed regularly. The mother died in a few hours after delivery.

THE PRESIDENT wished to say a word about the theory of causation advanced by the SECRETARY, the idea of displacement, or rotation of the ovum after implantation. It seemed to him that there was a more important cause, and in all the cases he had personally investigated, about four, there had apparently been good reason for the theory that disease of the uterine mucous membrane, inflammatory and with an unusual pathological amount of secretion over its surface, is the cause of the implantation at the cervix instead of at the normal place, in the vicinity of the entrance to the Fallopian tube. From the quantity of the mucus the ovum glides down to the cervix and remains there, because the tissues are more healthy, perhaps. In two cases of *placenta prævia* that he had knowledge of pregnancy occurred some time after treatment, with a previous history of sterility, or of miscarriages, and, possibly the mucous membrane nearest the cervix was in a more healthy condition than that near the Fallopian tubes, or possibly there was constriction of the internal os. It seemed to him there was good reason for the belief that if the mucous membrane at the fundus is not in a good condition to nourish the ovum and to hold it, it falls to the internal os and is there

held, and there is a possible *placenta prævia* at full term. He wished to know if in Professor Etheridge's case there was any previous knowledge of uterine disease. Professor Etheridge replied that there was none, the woman was a healthy Scotch woman.

PROFESSOR ETHERIDGE asked whether *placenta prævia* is a common thing in animals.

DR. SAWYER replied that he had seen a mare throw off her placenta before she threw her colt, and in fact she died without throwing the colt. He said further that he believed cervical pregnancy is generally recognized as being secondary to another thrown off from the fundus; that being the case, why not a secondary attachment or lodgment of the ovum at the lower segment of the uterus, as well as in the cervix itself. He believed the majority of authorities is against the idea of cervical pregnancy in the abstract, but he thought Dr. Bartlett considered it possible to conceive in the cervix.

THE PRESIDENT said there might be disease of the uterus there, and then comes the question whether that is the sole cause, or one of the many causes. The question had been asked whether *placenta prævia* is of frequent occurrence among prostitutes, women who might be supposed to be anxious not to become pregnant, and he thought it had been answered in the negative.

DR. SAWYER asked if the PRESIDENT's theory was correct and his observations had been confirmatory of it, how is it that Spiegelberg can say that many primiparæ, young, healthy women miscarry on account of *placenta prævia*.

DR. SAWYER thought that pregnancy itself was infrequent among prostitutes.

DR. H. P. NEWMAN mentioned a rare case which had lately

come to his notice, namely, a complete central implantation of the placenta, in which no hæmorrhage had occurred throughout the entire pregnancy until the very last days of gestation.

Ten days prior to delivery at full term there was the first appearance of bleeding,—easily checked by assuming the recumbent posture; and it was not until five days later that the hæmorrhage became at all abundant.

Delivery took place on Tuesday, April 13th.

On the preceding Friday Dr. R. N. Hall was called, and diagnosed *placenta prævia*, using the tampon.

I first saw the case in consultation with Dr. Hall on Tuesday morning.

The repeated tamponing and use of the colpeurynter the night before, had had the effect of gradually bringing on labor pains, and softening and dilating the cervix to the diameter of nearly two inches.

A digital examination revealed nothing but a thick placental surface upon all sides, covering, as we afterwards found, the entire lower segment of the uterus.

By bimanual palpation we made out a shoulder presentation (left dorso-anterior), and decided on immediate delivery.

Every preparation being made to control hæmorrhage, the placenta was carefully separated from its uterine attachments upon the left side, and the right hand carried upward between the membranes and uterine walls.

When the feet were reached the sac was ruptured, podalic version performed, and the child extracted.

Meanwhile Dr. Hall had followed up the evacuation of the uterus by firm bimanual pressure upon the uterus through the abdominal walls.

The placenta, which was a large one, and pretty evenly distributed upon all sides, was separated from its remaining attachments, and removed as speedily as possible.

The entire procedure was accomplished in less than five minutes, and the hæmorrhage was not excessive considering the gravity of the situation.

The child was saved, and notwithstanding the amount of blood lost by the mother at and previous to delivery, she convalesced rapidly, and is now up and about.

She is a strong, healthy woman of middle age, has borne seven children, and has had three miscarriages.

With the exception of rapid childbearing, a laceration of cervix, and one faulty presentation necessitating version, her former history has no particular interest.

In closing the discussion DR. BARTLETT said, that in a paper written years ago he had expressed an opinion that *placenta prævia* was one of the simplest of the *errores loci* of the ovum, that the true site of the placenta, when *prævia*, was the cavity of the cervix, that is, below the *os internum*, or the so-called ring of Bandl. Dr. Bartlett took occasion to emphasize his conviction of the truth of the position taken by him in the paper referred to. In the case now before the SOCIETY corroboration of his idea might be found. An ovum resting in the comparatively large cavity of the uterus would take root on the surface to which it chanced to be more nearly apposed. An ovum arrested in the much more circumscribed cavity of the neck might secure a more general, and in some rare instances, a complete attachment to surrounding uterine tissues.

W. W. JAGGARD, M. D., *Editor*.

2330 Indiana Ave.
14th June, 1886.

FOREIGN CORRESPONDENCE.

To the Editors of the CHICAGO MEDICAL JOURNAL AND EXAMINER,

Gentlemen:

The third annual meeting of the Italian Surgical Society was held in Rome on the 19th, 20th and 21st of April. President Durante occupied the chair, and after an appropriate address opened the meeting for work.

Professor Trombetta, of Messina, read the first paper on the total extirpation of the thyroid gland, and on the strumous cachexia which may occur after the operation, as was first called to our attention by Tuillard and Köcher. He had performed this operation over a year ago, and the patient is now enjoying good health, showing no tendency to the cachexia. He cited the results of Köcher, Baumgarten, Credè, Mikulicz, in 55 operations, of which only 15 (27 per centum) became cachectic, while 40 (73 per centum) showed no tendency to it.

Professor Caselli, of Genoa, had performed five extirpations; the first seven years ago, and the last two years ago. The patients are at present in the best of health, except the third case, which died three days after the operation. Professor Ruggi also reported five operations. Two ended in cachexia, and three are well. Professors Ceccherelli and D'Antona each reported three cases.

Dr. Granati reported a very strange case of laparotomy and caesarian operation, which, if it were not for the well-known

truthfulness of the doctor, and the fact of its being vouched for by equally well-known physicians, would seem incredible. A country-woman, 23 years old, and unmarried, became pregnant. Being almost at full term, and wishing to conceal her condition, she attempted to produce a miscarriage upon herself by passing a long knitting needle into the vagina so as to puncture the amniotic sac. She had punctured four or five times the anterior lip of the neck of the womb, but with negative results. Wishing to avoid a medical examination, which was threatened by her employers, on the 28th of last March, she took a large kitchen knife, and with it opened her abdomen on the right side, making an oblique wound from within outwards and from below upwards of about 12 centm. in length. She also incised the uterus in the same manner and attempted to draw out the fœtus. But this being too large to pass through the wound, she severed an arm, and the head from the trunk, so as to reduce it in volume, and by so doing she was enabled to extract the whole fœtus. Having emptied the uterus also by taking out the placenta, she put a large bandage around her belly, strongly tightened, got up from bed, and hid the fœtus in the mattress. Then she dressed herself, did some housework, and went to the nearest town (Viterbo) on a wagon. She visited one of her sisters, to let her know that she could not be pregnant, for her underclothes were still wet with menstrual blood. After having stopped here about two hours, she returned to her home in the country, walking about a mile, but when she reached the house she was taken with a severe vomiting and fainted. Drs. Serpieri and Baliva were sent for by her parents. They found a wound as described above, and a mass of small intestines protruding. They replaced these, and dressed the wound as the case required.

Not the least sign of a peritonitis has ensued, excepting a slight tenderness around the wound. There has been no vomiting; no hiccough; very little thirst; the tongue has been rosy and moist, and the alvine discharges normal. The highest temperature has been $38\frac{1}{2}^{\circ}$ C. (101° F.); the pulse never above hundred. The patient has always slept well and eaten well. No complications have arisen in the uterus and its appendages. The lochial discharges have been normal. At present, 21 days after the wound was inflicted, the abdominal wound still suppurates and is not yet closed. She constantly denied any accomplices, and insisted that the punctures in the uterus and the laparotomy have been done exclusively by herself. This case is really extraordinary.

Ruggi reported several cases operated on for tumors on the head and neck. Caselli desired to know if the members ever observed any cardiac or respiratory disturbances following a stretching, displacement or lesion of any kind of the pneumogastric nerve. He had lost two cases in over a hundred operations, in which he had been obliged to stretch or displace the nerve. He favored the incision of the nerve, rather than irritating it. Ferrari had seen this procedure done by Volkmann. He thought the cause to be in the chemical irritation of the antiseptic used in the operation. Durante recalled an operation for the removal of a sarcoma of the neck, during which he had been obliged to dissect, stretch and displace the nerve. A month after the patient began to complain of some disturbance of respiration.

Durante read an elaborate paper on his new process of resection of the knee joint. His operation consists in removing the bony tissue from the two articular extremities of the femur and tibia in such a manner that the wedge formed of the tibia

enters an analogous space made in the femur. By so doing we obtain an exact approximation of the bony surfaces without any danger of lateral displacement. To avoid any antero-posterior displacement, he preserves the patella, by taking off only the cartilaginous layer and fixing it by means of a Thiersch nail to the head of the tibia. He has had good results in four operations.

Triconi read a paper on suppuration due to micro-organisms. His results do not differ from those of Rossbach, Garré, etc., with the exception that he has found in abscesses and boils only one staphylococcus, which he claims to be specific. It was not found in the blood and does not produce osteomyelitis.

Following this paper, the same author read another, on senile gangrene. He drew the following conclusions: 1. Senile gangrene is due to a small bacillus, short and thin, with rounded extremities, with a spore in the center or in the sides. 2. This bacillus circulates in the blood of patients affected with senile gangrene (has seen it three times). 3. It exists in the gangrenous icor, in the demarcation line, in the blood, in the heart of the cadaver, and in the lymphatic spaces of the skin and subcutaneous tissue. 4. Experiments of culture can be made in gelatine, in beef tea, in agaragar, in blood serum, and potatoes. 5. Colors well with aniline, especially red and violet. He has transmitted the disease to calves, rabbits, and rats.

Ceci reported a case of rupture of the tendon of the patella at its insertion in the tibia. He sutured it and had a good result.

Lampugnani reported 166 successful orthopedic operations of the bones.

Margary sent a paper on the treatment of flat foot, by the extirpation of the astragalus.

D'Antona read a very interesting paper on renal surgery, reporting seven nephrectomies.

Caselli reported three cases of laparotomy. The last for the treatment of a purulent peritonitis. He washed the abdominal cavity every two hours for the first two days with an antiseptic solution, and had good success. This is the first case of the kind ever treated in Italy in such a manner.

Ceci impressed the SOCIETY by presenting a successful extirpation of an enlarged spleen. The patient was a female, only 17 years old, and not well developed. The operation was performed on the 20th of last March, in the Pammatone Hospital at Genoa. The bichloride of methylene was first used as an anæsthetic, but the narcosis was slow and irregular. An incision 23 centm. long was made in the *linea alba*, but during the hæmostasia of the abdominal walls, symptoms of suffocation supervened, and the operation was interrupted for half an hour. Chloroform was then substituted for the bichloride of methylene with good effect. The enlarged spleen was drawn through the wound, and the peduncle, 13 centm. large, was ligated with three sutures. Very little blood was lost, and the operation lasted one hour and a half. The extracted spleen weighed 2,400 grams, or 1-16th the weight of the body of the patient. A furious delirium followed and lasted until the next morning. After this there appeared a rapidly progressive shock, and the temperature went down to 35.8° C. (96.5° Fah.).

This danger having been overcome, the pulse became very rapid, with impossibility of counting it, the respiration

60 to 80. This condition lasted two days. Great benefit was derived from oxygen inhalations and from nourishing and stimulating food given by enemas. The respiration fell to 30 and the pulse 120. On the fourth day fever appeared. On the eighth the dressing was changed. Suppuration was found in the line of the sutures, and purulent peritonitis. This septic process was immediately aborted by energetic disinfection. Erysipelas of the abdominal walls then followed, and was also overcome. On the 16th day Professor Ceci declared the patient out of danger, and at present (a month after) is almost well. This is the first operation of the kind attempted in Genoa, and the second in Italy with a recovery, the fortieth on record, and the eighth with a cure.

Durante related two cases in which he had made an artificial anus, as a preparatory treatment in severe diseases of the rectum.

Ceccherelli reported a case of laparotomy for a foetal inclusion. The patient was a girl 11 years old, who for years had suffered pains in the abdomen and had noticed a tumor on the left side. A diagnosis was made of a multilocular ovarian cyst, with calcareous patches in the walls of the cyst. Ovariectomy was performed, and in 15 days the patient was well. On examining the tumor it was found to be a foetal inclusion, and precisely of a type known as *engastro-amorphus*.

Mugnai reported a number of experiments made in the surgical clinique of Rome, on local anæsthesia produced by hypodermic injections of a 5 per centum solution of cocaine. He had been able to do several operations such as external urethrotomy, extirpation of a sarcoma of the inguinal re-

gion, two removals of testicles, etc. Professor Caselli confirmed these results, and believed that with cocaine we can do two-thirds of surgery without using the usual anæsthetics.

Lampiasi reported two cases of ligature of the subclavian artery.

Postempski presented two cases of echinococcus of the liver treated with the Recamier caustic. In both cases he had hernia of the abdominal viscera. In one, a protrusion of the stomach, and in the other of the small intestines.

Mazzoni read a paper on intestinal resection for gangrenous herniæ. He had a successful result in one case. The statistics show that in Italy, up to 1884, the results have not been good. Mazznechelli had three deaths in four operations. But lately the results have been better. In 15 operations only five died, three from pre-existing peritonitis, and two from other causes. He advised silk or catgut for sutures. The surgeon should have no fear of resecting as much tissue as necessary, for it is imperative to reach the sound tissue.

Torretta spoke on hip-joint disease. He believes in early resections, for he claims they will give better results than the palliative or expectant treatment.

Other papers of little importance were read and discussed, after which the committee on nomination presented the following list of names, to act as officers for the ensuing year:

A. Caselli, president; A. D'Antona, A. Ceci, vice-presidents; Caneva, secretary.

The retiring president, after having reviewed the scientific work of the meeting, thanked the members of the

society for their papers and for the interest and harmony shown in the discussions; hailed at Genoa as the next place of meeting, and amid a general applause declared the third meeting of the Italian Surgical Society adjourned.

A. LAGORIO.

Chiavari, Italy, May, 1886.

PROFESSOR CREDE'S CLINIC IN LIEPSIC.

To the Editors of the CHICAGO MEDICAL JOURNAL AND EXAMINER:

GENTLEMEN.—I spent several days at Leipsic on my way from Bremen to Vienna, and was delighted with the cordial manner in which I was received by Professor Credé, though I had nothing but my card as an introduction.

He is sixty-six years old, low in stature, heavy built, wears a thick head of white hair which he combs directly back, moves rapidly, is full of energy, and a thorough believer in the peculiar views that he holds and practices in the lying-in wards of the hospital of which he has charge.

I saw laparotomy performed twice by Dr. Säger, Professor Credé's assistant, who has lately become quite celebrated throughout Europe by his successes in doing the caesarean section. These cases were for the removal of the ovaries for the relief of uterine fibroids.

The Lister spray was kept playing in the room one hour before the operations began, but was removed as soon as the patient was narcotized and everything ready for the operation.

The incision in the median line was about three inches long, the ovaries were ligatured with silk, the stump was cauterized slightly with the thermo-cautery, dusted over

with iodoform, and the incision in the median line closed by stitches put in about one-fourth of an inch apart, the line of union being covered with the same drug followed by a thick layer of iodoform gauze and absorbent cotton. In answer to the inquiry as to the benefit derived from this treatment in this class of cases, I was told that so far it had been good, that while the tumor in some cases did not lessen in size, it ceased to grow and the hæmorrhage being arrested the patients generally rapidly improved.

I was fortunate in visiting Professor Crédé just at the time when he was giving his lectures on his management of the afterbirth.

After the clinic I always followed the Doctor around the wards to visit and examine the women lately delivered. Every case was carefully looked over, and the card that recorded the temperature and pulse was closely inspected. Each patient had on a large cloth pinned in the manner that a diaper is applied to an infant. Beneath this cloth, covering the entire genitals, was a thick layer of absorbent cotton.

He unpinned the diaper, took off the cotton, smelled of it, asked how long it had been on, and directed as to how frequently it should be applied in the future. Besides this he examined the contour of the womb through the abdominal walls, usually made friction over it for a few moments with his hand, and if the organ appeared larger than he thought it ought to be, gave the patient directions how to repeat at stated intervals the same process herself. Among the cases that we passed there was one in which the cotton removed smelled terribly. I asked, "Professor,

is this the way you manage all your cases, including the one with foul discharge?" His reply was that this was his entire treatment.

Fearing still that he did not fully comprehend my meaning, I asked again, "What do you do to counteract this bad odor." His reply was, "*I just let it stink.*"

I asked him farther, how often he found his pressing out process for the removal of the afterbirth to fail him, making it necessary to introduce the hand into the womb or vagina to accomplish the same. Turning to his assistant, who is full of figures and statistics—and telling him to answer me that question, the reply was only three times in the last year in a series of nearly 600 deliveries. He farther explained, that in none of these three cases was the labour a normal one. One was a case of placenta prævia, one a case of miscarriage at six months, and the other followed the removal of a dead fœtus with extreme uterine inertia. Professor Credé has just had issued from the press a work entitled, "*Gesunde und Kranke Wöchnerinnen.*"

After seeing the man himself and something of his practice I have read with more than ordinary interest this work, which he tells us contains the carefully kept records as to pulse, temperature, etc., of over 7,000 patients, running through a period of over twenty years. Among the fundamental facts with which the Doctor begins this work, is that an increase of temperature and pulse-rate is not always a sign of the existence of a true pathological process requiring our active interference, disturbances of the nervous system, derangements of the alimentary tract, slight inflammatory processes in the mammary glands, are

among the causes that may increase the bodily temperature and the pulse frequently, without being a source of anxiety to the attending physician.

Again Professor Credé says that a solution of continuity of the surface of the genital tract is an almost universal outcome of every case of childbirth.

To avoid as much as possible the wounding of this canal, and especially the mouth of the womb, he says that all *internal* examinations should be forbidden or only resorted to in extreme cases. Lying-in women should never be used as material for the instruction of students, where such instruction includes a vaginal examination. To be able to make your diagnosis as to the presentation and position of the child, by external manipulation alone, is the great landmark that separates the obstetrics of the past from that of the present.

During the last year he has found it necessary to examine the womb seven times only *per vaginam*, to assist diagnosis, and often two to four weeks will elapse without a single vaginal examination being made in the wards of his hospital. In fact, he proposes to limit such examinations to cases that require manual or instrumental assistance. Having avoided as much as possible the wounding of the genital tract by abstaining from manual examination we still have a more or less wounded surface as a natural result of the pressure that has been brought to bear upon the parts during the passage of the child through the womb and vagina.

“How are you going to manage this wound that is hidden from view and that cannot be treated upon the general

principles that underlie the management of wounds in surgical practice?" His answer is, "*Let it alone.*" To vindicate this practice he does not believe in the autogenic origin of effete matters inside the body that are capable of producing the contamination of the blood by being absorbed by these open wounds that follow labour.

In other words the lochial discharge, though varying vastly in quality and quantity, only becomes a source of septic poisoning to the patient when a *materies morbi* is allowed to gain access to the genital tract through the medium of the hand of the accoucheur or some form of instrument introduced into the same.

In accordance with this view he takes no pains to separate patients who are suffering from puerperal processes from those lately confined but who are perfectly well. As long as the septic process is local in character your prognosis is favorable, but as soon as you have "*allgemeine vergiftungen*" your case is one that will result almost assuredly fatally.

Where blood-clots and portions of the membranes fail to come away with the afterbirth he thinks it best to let them alone and allow them to pass spontaneously, rather than remove them either manually or instrumentally, thus saving the patient the great danger of being poisoned by the access of germs to the vaginal or uterine tract.

He gives several cases to illustrate the bad consequences of introducing the hand or fingers into the vagina, among them one of a woman who had a premature labour, the child only living 24 hours. She did well until the 9th day, at which date one of the assistants (unauthorized) intro-

duced his hand into the vagina and finding the womb open and a clot of considerable size inside of it, he proceeded to remove the same.

Within a few hours after this seemingly simple operation the patient was taken with a severe chill, followed by a high fever and died on the 17th day after her confinement. The post mortem showed the entire inner surface of the womb to be covered by a pyogenic membrane, the uterine veins engorged and containing pus and a lobular pneumonia as a result of a secondary metastatic process.

The only treatment that this patient received was quinia, wine and camphor. In a rather extensive acquaintance with obstetricians and gynecologists of Europe one finds unfortunately the most of them astride of a hobby which they ride through good and evil report. Admitting Professor Credé's idea, that we generally interfere too much in the management of our cases of labour, yet in the case above described would not a deviation from the plan in the way of washing out the woman's womb as soon as the first signs of fever, etc., made their appearance have added greatly to her chances of recovery? His antisepsis consists in keeping the external parts clean, paying no attention to anything within the vaginal orifice. To facilitate this he cuts the hair around the genitals of the woman short with the scissors at the time of or just before her confinement.

Speaking of the use of quinia and digitalis in the treatment of the puerperal process he says that they are totally worthless, or to quote, "dass sie auf den Vergiftungsvorgang nicht den geringsten Einfluss ausüben."

Ether and camphor hypodermically and wine and cognac by the mouth are the remedies upon which he relies. Though perhaps I have already extended this article to a length that will encroach too much on the space that I ought to occupy in the columns of your JOURNAL, I trust that the following addition from the clinic of Carl Braun bearing on the subjects that I have discussed will be thought of sufficient interest to warrant their insertion.

A week ago a woman was brought into Carl Braun's clinic and placed upon the table with the following history. Twenty-four hours before this time she had been delivered, the labour natural and the after-birth following soon after the birth of the child, but the membranes did not pass away.

She had just had a severe chill and her temperature was 40.6° R.

A large blunt curette was introduced into the womb, the retained membranes were scraped away and the entire inner surface of the womb was *gently* scraped out.

The womb was now washed out with two litres of a solution of bichloride of mercury, one part to 4,000, and this was followed immediately by a second washing out with thymol, one part to 1,000.

The last washing was done to prevent the possibility of mercurial poisoning that might have followed the use of the first remedy. Eighteen hours after this treatment this patient's temperature fell to normal, and one week after this operation she walked into the clinic to show us that she was entirely well. In connection with this case Braun remarked that they had lost a case this spring whose initial symptoms

and history had been similar to those of this patient, but in which the active treatment pursued in this last case was not instituted until three days after her chill, and that during this time the septic poisoning had become generally disseminated through her system and no local treatment would arrest the process. Professor Braun, while lecturing on these cases, took occasion to refer to the Credé method of the management of the after-birth, and held that in practicing it you would frequently fail to get the *entire* secundines, that, although the after-birth might come away, the membranes might still remain in the uterus.

Farther than this, where portions of the membranes remained in the womb, his plan was to remove them at once, and if it could not be done without the blunt curette such removal should always be followed by a thorough washing out of the womb with an antiseptic solution. I have some interesting surgical notes from the clinic of Professor Tiersch, of Leipsic, which I shall include in my next letter.

W. S. CALDWELL.

VIENNA, AUSTRIA,

May 29, 1886.

DOMESTIC CORRESPONDENCE.

NOTES OF MEDICO-LEGAL CASES OF NERVOUS AND MENTAL DISEASE. By S. V. CLEVINGER, M. D., *Consulting Physician to Michael Reese Hospital, etc., etc.*

To the Editors of the CHICAGO MEDICAL JOURNAL AND EXAMINER:

GENTLEMEN.—I send you herewith notes of some of the medico-legal cases in which I was recently engaged as an expert, and which presented many points of general and special interest to physicians and lawyers. Although outlines only are given below, yet these may serve as indices to the cases which are recorded in full by the courts and attorneys, where use for details may be found.

PARANOIA.

State vs. Otto Funk.—This individual was well known as the book-thief and dynamiter. His life was that of the typical paranoiac. He studied at the Chicago University and filled his rooms with books stolen from the public library of the city, between one and two thousand volumes, it is said. He had a picture of a pretty nun on his wall before which he would spend hours. Finally he discovered a young lady who resembled the one in the picture, and for years annoyed her with his attentions. As she repelled him, he dug a trench in the rear of the University and at one end of it placed an ingeniously constructed trap for the purpose of abducting her.

I asked him, when he was in prison, what his intentions were with regard to her, and he stated that he would have indelibly marked her forehead with "Variety is the spice of life," and then let her go. But, said I, "You had many opportunities to do this in the college building without resorting to such troublesome methods as digging pit-falls." He replied, "I never thought of that."

Among the cart-loads of books recovered from Funk was a cake of dynamite. He had no very definite ideas as to what he intended doing with it though it must have had some connection with certain reformatory and socialistic schemes he entertained.

Like Guiteau he had written a book, though it had not been printed. The wording was sophomoric and egotistical. He was the central figure on every page. As revealed by his scribbings, he delighted in imagining himself wrongfully dispossessed of a title to nobility and an immense fortune. He repudiated his plebeian parents and their uneuphonious name, assuming Talcott as a cognomen. According to his narrative, he was learned, mysterious, handsome and irresistible in love. His erotism seems to have been platonic, however.

Spitzka describes such characters as having "bizarre rather than productive conceits, their reasoning as paradoxical rather than logical, and their argumentation tricky and shrewd rather than substantial. To the laity such subjects often appear to be brighter than the ordinary run of mankind, because commonly oddity is mistaken for brilliancy and unblushing pretense for merit." There was a marked occipital flattening, such as Morel noticed as possessed by some paranoiacs, with a not very noticeable asymmetry of the skull and tectocephalism.

He was committed to the Elgin Asylum, from which he escaped and managed to enter the Harvard Theological School, in Cambridge, Massachusetts. He stole large quantities of books from the library of this institution, was detected and committed suicide in prison.

EPILEPTIC INSANITY.

State vs. Gardner. An itinerant dentist had neglected and abused his wife in many ways. It was proven that she had purchased a revolver, and a week later had shot her husband and infant and attempted her own life. At the hospital she aroused from a stupor and asked to be allowed to return home, or that her husband might be summoned. She plainly had no recollection of the tragedy. At the request of the Woman's Club, of Chicago, and Attorney Westover, I examined into the case and testified that the act was consistent with the belief that Mrs. Gardner was suffering from larvated epileptic insanity. It transpired in the evidence that her father was an epileptic and that Mrs. G. had frequent attacks of facial spasms, "Jacksonian" epilepsy and *petit mal*. The deliberation with which she set about the slaughter had no weight against my theory, notwithstanding the ground held by some alienists, that absence of design is the main characteristic of furious acts of the epileptic insane.

Echeverria, in the *Journal of Mental Science*, London, April, 1885, concludes an examination of this question as follows:

"Sudden impulsive acts related to the psychical manifestations of epilepsy very often evince in their automatic execution a coherent planned purpose.

"Epileptics cannot be held responsible for any act of vio-

lence perpetrated during their unconscious automatism, which they have no power to control or capacity to judge."

The testimony was uniformly to the effect that she had been a devoted wife and that she was wholly unconscious at the time of the killing. Judge Moran, before whom the case was tried, was evidently convinced of the irresponsibility of Mrs. Gardner, and the jury unhesitatingly acquitted her.

SPINAL CONCUSSION.

Holland vs. C. & E. I. R. R. Co. February 16, 1883, Isaac W. Holland, a conductor on a suburban passenger train of the C. & R. I. R. R., was thrown forward by a collision, against the front of his car, rebounding backward, striking the last dorsal vertebræ upon the solid wooden top part of a seat, thence whirling to the floor. When he arose he felt sharp tingling sensations in his back, neck, head and extremities. He walked about, however, at the time, and assisted in getting his train into shape. The force of the collision may be judged from both locomotives being wrecked. At this date he weighed 197 pounds, and two years later only 102 pounds.

March 25th, 1883, the pain in his back became so severe as to necessitate his giving up work, but he rallied for a few days, struggling manfully against his fate, with slight remissions, until December 9th, 1883, when he became bedridden, in which condition he has remained ever since.

In December, 1884, at the request of plaintiff's attorneys, Messrs. Kretzinger, I visited and examined Mr. Holland, and found complete harmony between the subjective symptoms and the objective signs of his disorder. He was

in a darkened room, his pupils were dilated and he suffered from photophobia, constant pain in his back; noises made his head ache. He had not had a good night's sleep for a year. His appetite was miserable. In his arms and legs, as well as rest of body, temperature was subnormal, and formication and numbness were constant. Pain began in the dorsal region and shot up to his head. Muscular motions were feeble, emaciation was extreme. He was unable to move himself in bed without assistance. Genital power and sexual desire were extinguished. He had had several epileptiform convulsions in the past year.

Tested with the æsthesiometer, there was a diminished ability to determine or locate points touched. With hyper-æsthesia there was an increased sensory response to both the galvanic and faradic currents, indicative of irritability, but no reactions of degeneration.

Dr. Bettman, the oculist, at my request, made an ophthalmoscopic examination of the retinæ, without atropine, as the pupils were sufficiently dilated, and found anæmic discs. Fibrillary tremors of the muscles of arms and legs were noticeable. The tendon reflexes were greatly exaggerated, the stroke below the patellæ caused intense pain in the back. Limb coördination was decidedly impaired, he could not touch his nose tip with his eyes closed.

Plaintiff brought suit against the Eastern Illinois R. R. Co., as the one responsible for the injuries he had sustained, claiming \$40,000 damages for total disability. The trial in Judge Gary's court, May, 1885, lasted eight days.

Simulation was the main claim for the defence and Page's little work on "Injuries to the Spine" was used by defendant's attorneys to establish the grounds taken.

Plaintiff's attorney made excellent use of Ericksen, Ross, Gowers, Hartshorne, Pavy, and numerous other medico-legal, neurological, surgical and general medical works, to show the consistency of Holland's condition with the usual phenomena of spinal concussion and to defeat the claim of the rail road that he was undergoing voluntary starvation.

The jury awarded plaintiff \$25,000 damages and the case went to the appellate court, appellants claiming the amount to be excessive. In March, 1886, the award of the lower court was approved and the judgment sustained.

INSANITY A SYMPTOM OF BODILY DISEASE.

Crandall vs. Accident Insurance Company of North America.—An action was brought in Judge Wylie's United States District Court, to recover on a \$10,000 policy. Mr. Thomas Bates, attorney for defendant, held that Mr. Crandall had committed suicide while insane and that provision had been made in the policy against death or injury arising from diseased conditions of the holder. Mr. Bates engaged me to testify as to the relationship existing between insanity and bodily disease.

I held that insanity was a disease of the mind, just as neuralgia was a disease of the nerve function, but it was only a *symptom* of a bodily disease. The distinction being that the mind as an effect of normal bodily workings could be deranged only through some improper action of bodily organs. It is inconceivable that the time-keeping of a clock should be irregular or cease, unless the mechanism were out of adjustment. The horology of the clock and mentality may be aberrant, but both conditions imply as causes illy-working mechanism.

The engineer speaks of his locomotive "working crazily," but knows that it is due to imperfection in his machine, hence its "craziness" is a symptom, and cannot exist as a condition independent of the engine.

Plaintiff's attorney asked if such views had not won for those who held them the title of "physical mediacists." I stated that such a name might apply as contradistinguishing them from metaphysicians, who held that the body had no connection with the mind.

The roof is the "physicalmedium" that shelters us from the rain, the ear and eye are the "physical media" by which we hear and see, the brain in conjunction with other bodily parts are "physical media" for mental action, and a man might as well be expected to walk without the "physical media" of legs as to think without his head.

I refused to undertake a definition of insanity as the law of relativity rendered any definition impossible. An approximation to one was contained in the statement that it was a symptom of bodily disease. The same difficulty lies in a consideration of what constitutes disease in general. This might be absence of health, and health is absence of disease. So far as that is concerned an absolute definition of anything is impossible.

The jury returned a special verdict and Judge Wylie decided in favor of the plaintiff upon technical points, having no reference to whether the mind could exist independently of the body or not.

The decision upon appeal will be one of the most important in insurance cases, as it will affect all life insurance companies.

To the Editors of the CHICAGO MEDICAL JOURNAL AND EXAMINER:

Gentlemen.—A pamphlet copy of an article on Insane Hospital Supervision, reprinted from the CHICAGO MEDICAL JOURNAL AND EXAMINER for April, has come under my notice—not having been sent me by the author or publisher, nor indeed sent to me by any person—which is in substance an assault upon the State Board of Public Charities of Illinois, for failing to do what the writer conceives to have been its duty, in the matter of the recent investigation by it of the management of the Cook County Insane Hospital.

No member of that board will, I am sure, object to any fair or legitimate criticism of its official action.

I am constrained, however, by my own sense of fairness, not being myself a member of the board, to ask you to print in your May number the following explicit and categorical denial of some of the misstatements contained in the article referred to. Dr. Spitzka may perhaps be excused for his errors, on the ground that he does not reside in Illinois, was not present at the investigation, can not have seen the testimony (which has not been printed), and is therefore in the favorable condition of mind for a reviewer described by Sydney Smith, when he said that he never read a book before reviewing it, lest it should prejudice his judgment.

(1). The State Board did not, in its last biennial report, “commend the Cook County Insane Hospital management as equal to the best State asylum,” nor speak of it in “eulogistic terms,” nor “laud the superintendent for reducing restraint.” It said:

“In relation to restraint, Dr. Spray remarks,” etc. It

merely quotes his words, without comment of any sort. It does not even assent to their truth.

It also said:

"The institution is conducted in the same manner as are the State hospitals, and the same regard is had to cleanliness, ventilation and the care and comfort of patients. In most respects, this asylum compares favorably with our State institutions. In only one ward was the hospital odor found to be offensive, and steps were being taken to remedy the matter."

The asylum was visited in August, and the report does not purport to give anything but the appearance of the institution to the eye of the observer. It was precisely what it is said to have been. It was clean, it was well aired, and the patients seemed to be comfortable. In these respects, it compared favorably with our State institutions. It was conducted "in the same manner as" the State hospitals; that is to say, not in the same manner as an ordinary county almshouse. It had the organization of a hospital, with a medical superintendent, residing in the institution, assistant physicians, matron, a clerk, a druggist, supervisors, attendants on the wards, night watches, etc., which almshouses as a rule have not. But this is far from saying that the management was equal to the best State asylum." The board had repeatedly expressed its opinion of the management in uncomplimentary terms, particularly in the report of 1878. It has uniformly and persistently held up the system of appointments and control to public opprobrium, when not a newspaper in Chicago would reprint its comments.

(2). The Chicago Medical Society and the Citizens' Association did not, in 1884, "request the board to unite with them in investigating" the institution, nor did either of them do so.

(3). The governor did not, in 1886, "order the board to make an investigation." On the contrary, he declined to issue any order, for the reason that he had no power, under the statute, to do anything of the kind.

(4). The board was not "desirous to screen the administration during 1883-4," and it did not screen it. If the board screened it, then Dr. Spitzka has also screened it. Nearly every statement made by him as to the condition of the asylum is quoted (for the most part *ipsissimis verbis*) from the report made by the board, and without giving credit (except in isolated instances) for his quotations. Either by accident or design, he has so used language as to convey the false impression that he is revealing what the board endeavored to conceal.

(5). The board did not "enforce the legal rules of evidence against Dr. Kiernan" and "fail to enforce them in his favor." Judge Grimshaw, who presided, a lawyer of half a century's experience and of the highest standing, repeatedly stated that in an investigation of this character (which was not a trial) it would be impossible to enforce strict legal rules of evidence; and that he was disposed to allow to both sides whatever degree of latitude might be requisite, in order to ascertain to the satisfaction of the board all the facts in the case, but that he would be obliged to keep the witnesses as close to the point at issue as possible. It was his manifest desire to treat both sides with

absolute impartiality, and I venture to say that not a disinterested spectator who was present at any session of the investigation will deny this assertion.

(6). The board did not "refuse to allow Dr. Kiernan to introduce any direct evidence after the rebuttal evidence of the accused." It considered that he had substantially proved his charges; the defence, if it can be so called, had virtually broken down: the public was weary of the whole matter; and no further evidence was offered by him, nor was any required.

(7). The board did not "refuse to render him assistance" in procuring witnesses. It gave him all the assistance in its power. The law does not confer upon it power to summon witnesses, and of course it cannot compel their attendance. It did issue subpœnas, on its own responsibility, for every witness named by him, but having no officer at its command to serve the same, it gave them to Dr. Kiernan to serve, which was all that it could do.

(8). The board did not "refuse at first," or at any other time, "to allow him legal aid." It may have expressed the opinion that he needed none. What the force of the expression "at first" may be, I have no idea. He had precisely the same assistance from the attorney for the Citizens' Association at first, that he had at any time during the investigation.

I am impelled to ask how Dr. Spitzka assumes to know the details of a trial or investigation at which he was not present, and on what authority he bases charges so utterly flimsy and unsupported.

(9). This is the first time that I at least have heard that

the request for an investigation came from a "Chicago bar committee"—who were they?—or from "the editors of influential papers and leading citizens," other than the Citizens' Association, the Woman's Club and the Chicago Medical Society.

Into any examination of the other inaccuracies of statement into which Dr. Spitzka has fallen, when he has undertaken to go outside of the record, I have neither the time nor the inclination to enter.

His conclusions are vitiated, first, by the want of connexion between the conclusion and the premises; second, by the erroneous character of the premises which he assumes; and third, by his evident desire to turn this investigation to special account as an argument in favor of a preconceived conclusion in favor of State commissions in lunacy.

I may be permitted to remark that the State Board of Charities of Illinois, which he assails, has declared itself in favor of a State commissioner in lunacy, and that a bill embodying this proposition has been introduced in the legislature of Illinois, with the sanction of its approval and endorsement. But the legislature would not hear to it. He is fighting his allies, instead of his enemies.

Both Dr. Kiernan and Dr. Spray seem to think—naturally enough, perhaps—that THEY were the parties on trial before the bar of public opinion. The State commissioners utterly failed to disabuse their minds of this impression, and had an arduous task to keep the investigation, which lasted for more than a week, from degenerating into an interminable wrangle over personalities. The real issue

was not their individual responsibility for the existing condition of affairs (which it was plainly beyond the power of either of them to remedy), but the responsibility of the COUNTY BOARD. It was the county board which was on trial; and the verdict was one of condemnation. If this verdict is not in accordance with the evidence, what should have been the form of verdict rendered?

The board had no wish to reward or punish, to help, or to injure, Dr. Kiernan, or Dr. Spray, or any one else: What it sought was the protection of *the insane*. It desired to find and apply a remedy. There is no remedy except in legislation. The legislature does not know Dr. Kiernan or Dr. Spray, nor care for either of them, except as citizens. It knows the county board; it has power over the county board; it can deal with it. The State commissioners have, in my judgment, laid the foundation for a successful appeal to the legislature at its next session for some remedial legislation.

Such attacks as those of Dr. Spitzka are calculated to injure the cause of the insane, rather than to benefit it. He simply does not understand what he is talking about.

Very respectfully,

FRED. H. WINES.

Springfield.

BOOK REVIEWS.

INSANITY AND ITS TREATMENT. *Lectures on the Treatment, Medical and Legal, of Insane Patients.* By G. FIELDING BLANDFORD, M. D., Oxon; Fellow of the Royal College of Physicians in London; late Lecturer on Psychological Medicine at the School of St. George's Hospital, London. Third Edition. Together with TYPES OF INSANITY, an Illustrated Guide in the Physical Diagnosis of Mental Disease, by ALLAN McLANE HAMILTON, M. D., one of the Consulting Physicians to the Insane Asylums of New York City, and the Hudson River State Hospital for the Insane, etc. Octavo, pp. ix, 379. New York: WILLIAM WOOD & COMPANY. Chicago: W. T. KEENER.

That this work has lived to see its third edition is evidence of its popularity and its usefulness. It is for the most part re-written, and the subject is brought down to the present time. It is not, nor is the claim made, that it is a systematic treatise, but is rather a hand-book for the use of students and practitioners—a guide for those who have to deal with insanity as it comes to them in general practice. For these it is perhaps the best work in our language; at the same time we think there are few English-speaking specialists who do not possess a copy of this work.

The appendix, on Types of Insanity, by Dr. Hamilton, adds materially to the value of the book. The nine plates illustrating the different forms of insanity are interesting and typical.

Their value in the diagnosis of mental disorders is very doubtful, as has been shown in the asylums of Venice, where the physiognomy of mental disease has been fully investigated.

H. N. M.

A TREATISE ON NERVOUS DISEASES; THEIR SYMPTOMS AND TREATMENT. *A Text-book for Students and Practitioners*, by SAMUEL G. WEBBER, M. D., *Clinical Instructor in Nervous Diseases, Harvard Medical School; Visiting Physician for diseases of the Nervous System at the Boston City Hospital; Member of the Massachusetts Medical Society; Member of the American Neurological Association, etc., etc.* Octavo, pp. ix, 415. New York: D. APPLETON & COMPANY. Chicago: A. C. McCLURG & COMPANY.

"This book was commenced with the purpose of writing briefly, and including what is most essential for the study of nervous diseases within as small a compass as possible." So reads the preface, which further states that the work is not written for specialists, but for students and general practitioners, who (presumably) have little time to read.

It belongs to the class of works that are written down, so to speak, to the level of an inferior class of readers. The work is divided into four nearly equal divisions, dealing with the diseases of the brain, spinal-cord, peripheral and sympathetic nerves, and the unclassified or functional. A chapter is devoted to the consideration of each disease, preceded by a short bibliography. As to matters of fact, there are no serious misstatements but a faulty arrangement; a series of descriptions put together without any attempt at classification renders the work of little value to the novice, for whom it was evidently written. The fifteen illustrations are too few in number to be of great value in illustrating the text.

The work seems to have been compiled for the sake of writing a book; printed for the sake of publishing one; and may be bought by those who desire to own a "treatise" in a good binding and of fair typographical appearance.

We are still of the opinion that the best work for the beginner in neurology is a work written for specialists and used by them.

DISEASES OF THE SPINAL CHORD. By BYROM BRAMWELL, M. D., F. R. C. P. (*Edin.*): *Lecturer on the Principles and Practices of Medicine, and on Medical Diagnosis, in the Extra Academical School of Medicine, Edinburgh; Pathologist to the Edinburgh Royal Infirmary; Additional Examiner in Clinical Medicine in the University of Edinburgh; late Physician and Pathologist to the Newcastle-on-Tyne Infirmary; formerly Medical Officer to the Tynemouth Union Workhouse Hospital, the Prudhoe Memorial Convalescent Home, the Tyne Floating Hospital, etc., etc. Fifty-three colored plates, and one hundred and two fine wood engravings. Second edition. Octavo, pp. xiv, 298. New York: WILLIAM WOOD AND COMPANY. Chicago: W. T. KEENER.*

The appearance of a second edition of this work within so short a time, and its translation into the German, French and Russian languages, is presumptive evidence of its value. The German edition is the most popular text-book on the subject in use in that country.

This last edition is somewhat enlarged, and contains thirty-two additional engravings and plates. These serve to further illustrate the clear and accurate text. The addition of a chapter on concussion of the spine, and the clinical exam-

ination of "railway cases" is timely, in view of the forensic importance of these conditions.

Among the original illustrations we are pleased to note that the old favorite, "an acute bed-sore (after Charcot)" is not forgotten. We trust that beginners in this field will not infer that acute bed-sores are rare, from the fact that there has never been but one illustration for them.

H. N. M.

A PRACTICAL TREATISE ON NASAL CATARRH AND ALLIED DISEASES. By BEVERLY ROBINSON, A. M., M. D. (*Paris*); *Clinical Professor of Medicine at the Bellevue Hospital Medical College, New York*; *physician to St. Luke's and Charity Hospitals, etc., etc.* *Second Edition, revised and enlarged, with one hundred and fifty-two wood engravings.* Octavo, pp. xii., 276. *New York: WILLIAM WOOD & COMPANY: Chicago: W. T. KEENER.*

A comparison between the first and second editions of Prof. Robinson's treatise is exceedingly gratifying to the rhinologist. The original issue of 1880 was the first monograph of importance published on the subject in this country. It was especially adapted by its practical character and excellence to supply the urgent desire which had then arisen for a lucid exposition of the subject of nasal catarrh, and it enjoyed, in consequence, an extended popularity to which the second edition, now issued, is well worthy of inheritance.

The author struck the key-note when, in the very first pages, he demonstrated the hydra to be comprised, not of a

single affection but of twenty-nine distinct and separate diseases, and as each of the twenty-nine received mostly different and appropriate medication, the riddle of treatment approached solution.

In the new edition, the same division of the subject is retained and then enlarged upon in the subsequent text.

Two beautiful illustrations of the reticular structure of the turbinated bodies convey a clear idea of the special erectile character of this tissue upon which the several varieties of chronic rhinitis, rhinitis simplex, rhinitis hypertrophica and rhinitis atrophica so largely depend. The prophylaxis of "taking cold" is expounded in a clear and forcible manner, particularly as regards the care of the feet, cold sponge bathing, frictions and massage, clothing, temperature and mode of heating living apartments; all measures, "important to the well being of the majority of people" but "absolutely essential to the prophylaxis or cure of those affected with catarrhal inflammations of the nasal fossæ."

The author very properly insists that an acute coryza, in its incipency, and later if necessary, should be systematically treated, both as a means of immediate relief, and as a prophylactic measure against chronic pathological changes of a catarrhal nature. The universal custom of letting a cold "run its course" is certainly to be deprecated. How frequently do we observe an acute rhinitis, continued thus for weeks, extending to the ears, eyes, larynx and bronchi, perhaps even recurring with augmented severity, again and again throughout the season. Such neg-

lect is the primary cause of many cases of deafness, of chronic laryngitis and pharyngitis with impairment of voice, of follicular disease of the naso-pharyngeal space, and of hypertrophic nasal catarrh, not to mention pulmonary affections, still more serious because of fatal tendencies.

Cocaine is unmentioned in this connection, doubtless because its introduction followed the preparation of the text. A one to two per cent. solution applied in the form of a warm spray is the most effective of local applications. A point well taken, and from which many profit, is that ulceration of the nasal cartilages and bones, even perforation of the septum, should not invariably be adjudged syphilitic. Scrofula, catarrh, febrile diseases, *e.g.*, typhoid fever, measles, etc., certain toxic substances, as arsenic and mercury, are all regarded as causes. We have reason to believe, also, that workers in lead not uncommonly suffer from such extreme forms of atrophic nasal catarrh as to lead to perforation of the septum and ulceration of other parts.

It is impossible to enumerate all the good features of the work. Most of the more recent special surgical procedures are described and the apparatus illustrated.

It is indeed to be regretted that the galvano-cautery, now found so extremely useful in naso-pharyngeal surgery, should not have received more extended attention. The most perfect apparatus of the sort, the Seiler-Flemming battery, remains entirely unnoticed.

The phraseology of the book is clear and concise, the paper and print are fairly good, and typographical errors are few in number.

W. E. CASSELBERRY.